

Conceptualising the psychological adaptation of trainee clinical psychologists:
the contribution of attributional style and personality.

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Abstract

Student Health Professionals (SHPs) are at risk for symptoms relating to a range of psychological problems, including anxiety, depression, drug and alcohol use, and stress. It is therefore important to develop methods for identifying individuals who might be at current or future risk, and to establish theoretically supported interventions. The current literature review indicates that further research is required in these areas and seeks to provide some suggestions about empirically based frameworks which might support approaches to screening and intervention. Differences between professional groups indicate the need for research to be focussed on specific groups of SHPs, Trainee Clinical Psychologists (TCPs) are the focus of the current paper. Previous conceptualisations of the psychological problems of TCPs are reviewed. The example of depression in undergraduate students is then taken as an illustration of the potential applications of cognitive models for identifying and intervening with individuals at risk of depression and other problems. The possible role of cognitive constructs (dysfunctional attitudes and attributional style) in TCP experiences of poor psychological adaptation is discussed.

The purpose of the empirical paper was to explore the contributions of two risk factors (personality as conceived of within the five-factor model, and attributional style), to psychological adaptation (problems relating to depression, anxiety, self-esteem and work adjustment) in TCPs. Structural equation modelling was used to model these relationships. The latent personality factor of stability (neuroticism reversed, agreeableness, and conscientiousness) was an extremely good predictor of psychological

adaptation. When stability was controlled for the contribution of attributional style was not significant. However given the clinical relevance of attributional style and potential for modification it was also considered in a separate model as a sole predictor where it was found to be significant. Implications for screening and intervention are discussed.

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Literature Review

How should we conceptualise psychological problems in student health professionals? The example of trainee clinical psychologists.

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How should we conceptualise psychological problems in student health professionals? The example of Trainee Clinical Psychologists.

Abstract

It has been widely reported that student health professionals are at risk for a range of problems of psychological adaptation including symptoms of anxiety, depression, stress, and alcohol and drug use. The early part of this paper reviews literature regarding the prevalence rates, associated risk factors, and professional and academic impact of such problems. Methodological limitations of the existing research are highlighted and variation between professional subgroups identified. The remainder of the literature review therefore focuses on one group, trainee clinical psychologists. Previous research has consistently reported problems of psychological adaptation in this group.

Surprisingly there have been limited attempts to employ theoretical frameworks which might be used to identify high-risk individuals and provide direction for intervention. The use of occupational stress models is one exception and the utility of such models is reviewed. The potential applicability of cognitive models of psychopathology is then explored using the example of theoretical conceptualisations of depression in undergraduate students. The final part of the paper explores the role that cognitive constructs such as dysfunctional attitudes and attributional style might play in identifying and intervening with clinical psychology trainees at risk of depression and other problems of psychological adaptation. Directions for future research are suggested.

Introduction

Professional training programmes for those pursuing careers in medicine, occupational therapy, physiotherapy, dentistry, and clinical psychology share the common goal of producing competent and effective clinicians. For a Student Health Professional (SHP) acquisition of knowledge is not sufficient, it must translate into skills and applied knowledge and understanding, culminating in a professional qualification. To this end training courses for SHPs tend to combine both academic and practical elements, often through clinical placements, lectures and formally assessed pieces of academic work and exams. This combination of academic and clinical demands presents SHPs with a range of challenges and a dual role as both student and clinician.

Symptoms of anxiety, depression, alcohol and drug use, and stress, have been reported to occur with high frequency across a number of subgroups of SHPs (e.g. Brooks, Holttum, & Lavender, 2002; Dyrbye, Thomas, & Shanafelt, 2006; Newbury-Birch, Lowry, & Kamali, 2002). In light of this there is surprisingly little research into the mental health needs of SHPs. Limited information is available with regards to the impact of the range of psychological problems on the personal, professional and academic functioning of SHPs. However, studies which have sought to identify consequences of SHP depression indicate there may be implications for course completion rates (D. C. Clark & Zeldow, 1988), academic success (Stewart et al., 1995), and use of maladaptive approaches to learning (Kuyken, Peters, Power, & Lavender, 2003). Such findings highlight the

importance of identifying individuals at risk of psychological problems, and developing empirically supported approaches to intervention.

Differences in gender, personality, social support and use of coping strategies have been identified as risk factors for the development of problems (Ashton & Kamali, 1995; Brooks et al., 2002; Newbury-Birch et al., 2002; Pickard, Bates, Dorian, Greig, & Saint, 2000; Stecker, 2004). However, stage of training and course-related stressors also appear to be important (D. C. Clark & Zeldow, 1988; Kuyken, Peters, Power, Lavender & Rabe-Hesketh, 2000; Newbury-Birch et al., 2002) and may account for varying patterns in the occurrence and prevalence of problems across different groups of SHPs.

To date there have been limited attempts to conceptualise SHP psychological problems within theoretical frameworks which might inform evidence-based approaches to screening, prevention, and intervention. The application of occupational models of work-related stress is one exception (Kuyken, Peters, Power, & Lavender, 1998, 2003). The literature relating to the psychological problems of undergraduate students presents an alternative approach whereby cognitive models of psychopathology present the opportunity for increased understanding of cognitive vulnerabilities and theory-based interventions.

In light of the significant body of literature surrounding psychological problems in undergraduate students, the first part of the current paper considers why such research is important, before moving on to consider how the experiences of SHPs might differ. The prevalence of particular disorders in SHP groups, risk factors for their development, and associated functional outcomes are then discussed. Given the observation that SHPs are a

heterogeneous group, Trainee Clinical Psychologists (TCPs) are introduced as a specific group on whom to focus the rest of the review and conceptualisations of their experiences within occupational stress models are discussed. In seeking to identify alternative approaches to the psychological problems of TCPs the literature relating to undergraduate students will then be considered. As in the wider literature, the popularity of cognitive models of psychopathology is evident and depression will be taken as an example by which to demonstrate the contribution of cognitive approaches. Finally, the applications of the cognitive vulnerability factors introduced by the cognitive models of depression (dysfunctional attitudes and attributional style) will be reviewed in relation to the problems of psychological adaptation experienced by TCPs.

Psychological problems in students

There are two lines of research which generate interest in the mental health of students. The first relates to concerns about the growing numbers of students who present at university counselling services with increasing levels of psychological disturbance (Royal College of Psychiatrists [RCP], 2003). Secondly, students are often viewed as a sample of convenience for recruiting large numbers of participants and generalising findings to other populations (Gallander Wintre, North, & Sugar, 2001). Studies of mental health problems in the student population have tended to focus on depression, anxiety, and drug and alcohol use. Anxiety and depression are the most common difficulties with which students present at university health and counselling services (Association for University and College Counselling, 2005). In a

cross-sectional study of over 2700 students the highest mean scores were recorded in relation to these areas (University of Leicester, 2002a).

In terms of the functional impact of psychological problems, depression but not anxiety has been observed to impact negatively on academic performance (Andrews & Wilding, 2004). However it has been suggested that self-report measures such as the Hospital Anxiety and Depression Scale (HADS) may overestimate the frequency of clinically significant levels of anxiety in the student population (Andrews, Hejdenberg, & Wilding, 2006). Such overestimation may explain the lack of association between anxiety and academic performance. It is possible that the anxiety levels of the students in these studies were not high enough to cause significant social or academic impairment. Indeed, at a lower level anxiety may motivate study and other adaptive coping strategies. The RCP (2003) note that although affordable and time-efficient, self-report methodologies limit conclusions about diagnosable problems.

The RCP (2003) also identified a number of person-related and course-related factors related to mental health symptoms in students. These included gender, age, course of study, and stressors such as academic issues (e.g. workload). In relation to these factors SHPs are likely to differ from the undergraduate student population. The following section will consider more specifically the experiences of SHPs in relation to the stressors associated with psychological problems, the prevalence of the most common problems, the functional impact of such problems, and directions for future research.

Psychological problems in Student Health Professionals

Stressors

The dual role of the SHP as student and health professional indicates that they might experience different or additional stressors to those experienced by undergraduate students, as they have to manage both an academic and clinical workload. According to Cushway (1992) the stressors most frequently reported by TCPs included poor supervision, travelling, deadlines, lack of finance, moving house, separation from partner, amount of academic work, uncertainty about one's own capabilities, too much to do, and changing placements. In an American study of graduate students in clinical psychology, Nelson, Dell'Oliver, Koch, and Butler (2001) found that stress correlated highly with stressors relating to spirituality, practical work, and relationships with supervisors, professors and friends. The stressors identified in these studies relate to both the academic and practical/ professional components of training. However stressors identified in relation to other SHP groups suggest that academic factors are more important. Goldstein (1979) reported that the primary sources of stress for first year dental students related to time use, mastery of the volume of material and inconsistent feedback from faculty. The Occupational Therapy (OT) students surveyed by Stout-Everly, Poff, Lamport, Hamant, and Alvey (1994) reported that the top sources of stress were examinations, amount of class work, lack of free time, long hours of study and grades. It is unclear from these studies whether the students surveyed were engaged in purely academic stages of training or undertaking both clinical and practical work. It is therefore possible that factors

such as course structure and stage of training account for variations in the nature of reported stressors.

With regards to the prevalence and aetiology of psychological problems in SHPs, the majority of the existing literature refers to the experiences of medical students, although there are isolated studies relating to SHPs in other fields. Anxiety, depression, and drug and alcohol use have been the most frequently studied problems. The prevalence and impact of these particular problems in the SHP population will be considered in more detail in the following sections. Exploration of the mental health needs of SHPs has also been influenced by the field of occupational health, where stress has been linked with a range of negative outcomes for health professionals. Therefore research relating to the experience of stress will also be reviewed.

Depression and SHPs

Based on a review of 40 studies of American medical students Dyrbye et al. (2006) reported that depression rates ranged from 4% to 25% (Beck Depression Inventory [BDI], score >8). In a Swedish cross-sectional study (Dahlin, Joneborg, & Runeson, 2005), medical students were found to have higher rates of depression (measured by the Major Depression Inventory, MDI) than age-matched controls (12.9% and 7.8% respectively). Similar levels of depression were reported for medical students at a UK university. Nine and a half percent of participants reached scores on the HADS indicative of clinical levels of depression (Pickard et al., 2000). Also using the HADS questionnaire Newbury-Birch et al. (2002) reported that 15% of dental students in their UK survey scored higher than the cut-off of 8, indicating possible cases of depression.

Several studies have looked at samples which include postgraduate students doing research and those in professional training. An American study found that 25% of participants reported scores which may be indicative of depression (Stecker, 2004). In a study of postgraduates at an English university (including clinical and educational psychology trainees) 33% reported that they were crucially or very concerned with coping with sadness, depression and/or mood changes (University of Leicester, 2002b). Ten and a half percent of the sample achieved scores on the Brief Symptom Inventory (BSI) indicative of moderate distress related to symptoms of depression. Using the depression subscale of the Employee Assistance Program Inventory (EAPI) Kuyken et al. (1998) found that 26% of the trainee clinical psychologists in their sample scored one standard deviation or more above the mean, translating into *T* scores of over 60. The authors of the EAPI (Anton & Reed, 1994), note that *T* scores over 60 suggest difficulty in the given area.

From the studies described above it is evident that self-report measures of depression consistently identify subgroups of different SHPs who score over clinical cut-offs. Direct comparisons between different studies are limited by the range of measurement tools used. Furthermore, conclusions about whether rates of depressive symptomatology are elevated in the SHP population versus the general population are limited by the lack of research involving SHPs and demographic-matched controls. The self-report methodology utilised by the majority of studies also presents problems. Without corroboration via diagnostic interview it is not possible to draw conclusions about the concordance between depressive symptomatology as identified by use of a cut-off on a self-report measure, and clinically

diagnosable levels of depression. In addition there are concerns regarding the extent to which self-report measures are completed accurately. Levine, Breitkopf, Sierles, and Camp (2003) asked 161 medical students about their experiences of completing the BDI for a research project. Almost 10% reported that they had not been totally frank and honest when completing the measure. Reasons for this included fears about stigma, anonymity, and feeling that the information was private. Such findings suggest that self-report methodologies may lead to underestimates of problems such as depression.

There is limited research into the functional impact of depression in SHPs. Within the general population depression is considered to have a significant negative effect on social and occupational functioning, and on physical health and mortality (National Institute of Clinical Excellence [NICE], 2004a). Depression in SHPs might be expected to affect professional functioning and be associated with factors such as absenteeism and drop-out. Consistent with this hypothesis, D. C. Clark and Zeldow (1988) reported a significant relationship between BDI score and factors including likelihood of quitting medical school and concomitant substance abuse. Stewart et al. (1995) reported a relationship between depressive ideation and symptomatology, and academic success.

Kuyken et al. (2003) found that depression was associated with decreased use of deep approaches to learning. Deep approaches are typically associated with improved educational outcomes compared to surface approaches (Biggs, 1979). The former are characterised by the intention to form a personal understanding of the topic and associated learning processes, whereas the latter approach is characterised by learning focused

on meeting the requirements of the course and work is approached in a routine way without linking ideas or seeking meaning. However, without measurement of academic outcome, assumptions are made about the relationship between approach to learning and academic outcome. Some studies have failed to demonstrate the predicted relationships between deep approaches and positive learning outcomes, and surface approaches and negative outcomes (e.g. Provoust & Bond, 1997).

Consideration of factors associated with increased risk of depression offers an alternative approach to the study of depression in SHPs. A higher probability of depression has been found in female versus male medical students (Dahlin et al., 2005; Pickard et al., 2000), and dental students (Newbury-Birch et al., 2002) reflecting a similar trend in the general population (NICE, 2004a). Stecker (2004) reported that lack of social support comprised a risk factor for depression in a large sample of professional and graduate students. In relation to their sample of trainee clinical psychologists Kuyken et al. (1998) found that depression scores were negatively associated with the support of a confidante at home.

Longitudinal studies of SHPs have indicated that risk of depression might fluctuate over the course of training. Kuyken et al. (2000) reported significant increases in depression over the three years of clinical psychology training, the largest change being between year one and two. D. C. Clark and Zeldow (1988) surveyed medical students at a number of points over the course of their training and found that BDI scores peaked at the end of the second year but remained higher than at baseline for the duration of the study. A range of factors might account for these fluctuations including the

timing of academic submissions or exams and increases in clinical expectations. Further research mapping fluctuations in mood against such factors might highlight any patterns and suggest times at which specific interventions or support might be effective. Potential differences between SHP groups suggest that research might need to focus on specific groups.

Depressive symptomatology is evident across professional groups. Studies incorporating a control group matched for demographic status are required to confirm any conclusions about potentially elevated depressed mood in SHPs compared to the general population. Furthermore, reliance on self-report measures of mood raises the question of how accurately current estimations of depression reflect rates of diagnosable disorder. Future studies might incorporate clinical interviews to increase the validity of their conclusions. It is notable that research exploring the impact of depression in SHPs is lacking. Given the potential impact on both academic and clinical outcomes future research might focus on the development of valid indicators of academic and clinical performance.

Anxiety and SHPs

Newbury-Birch et al. (2002) and Pickard et al. (2000) used the HADS to estimate levels of anxiety in a combined sample of dental and medical students, and medical students respectively. In the former study 67% of final year dental students and up to 30% of medical students scored within the range for possible levels of anxiety (scores >8). In the latter study 41% of second-year medical students scored within this range. Use of the HADS has also identified a high frequency of anxiogenic symptoms in the undergraduate population. Andrews et al. (2006) compared undergraduate student scores on

the HADS with diagnostic interviews and found that rates of possible anxiety were 76% according to the former but only 27% met criteria for a DSM-IV anxiety disorder (the HADS was found to be a reasonably accurate indicator of depression). The authors suggest that the endorsement of feelings of high anxiety by students might reflect transient feelings relating to temporary situations (e.g. exams or coursework deadlines) rather than reflecting ongoing levels of clinical anxiety. Similar studies comparing SHP self-reports with diagnostic interviews are warranted.

Risk factors for anxiety amongst SHPs are similar to those for depression and the wider population. Female medical and dental students are at greater risk of anxiety than males (Ashton & Kamali, 1995; Newbury-Birch et al., 2002; Pickard et al., 2000). Personality has been considered in several studies and relationships observed between neuroticism and anxiety in medical students (Ashton & Kamali) and poor personality adjustment and anxiety in trainee clinical psychologists (Brooks et al., 2002).

As with depression changes in anxiety have been observed over the course of training. Wolf, Scurria, and Webster (1998) reported that medical student anxiety was highest at the end of the first year and lowest at the end of the fourth year. Newbury-Birch et al. (2002) observed a similar pattern in another sample of medical students, however for dental students there was an increase of 20% between the second and final year. Varying patterns of anxiety between SHP groups might reflect differences in the distribution of demands over the course of training, (e.g. exams, submission deadlines, changing clinical demands). Such differences indicate that generalisations from one group to another might be misleading.

Again, studies exploring outcomes associated with SHP experiences of anxiety are lacking. Although the RCP (2003) warns that anxiety can lead to maladaptive coping strategies such as alcohol or drug use, studies of medical students have yielded inconsistent findings. Most studies have found no relationship between the use of alcohol or drugs, and anxiety or depression (Ashton & Kamali, 1995; Pickard et al., 2000), although Newbury-Birch et al. (2002) found a significant but weak correlation between alcohol consumption and anxiety in medical students. The impact of anxiety on academic performance has not been systematically studied in SHPs, Kuyken et al. (2003) reported that anxiety in trainee clinical psychologists predicted use of surface learning approaches (associated with poor educational outcomes).

The earlier criticisms of the SHP depression literature may also apply to the SHP anxiety literature. Reliance on self-report measures of anxiety symptoms and a subsequent lack of information about diagnosable rates of anxiety are problematic. The use of the HADS as a key index of anxiety might also be questioned in view of the likelihood that a relatively high percentage of people will be categorised as falling within the mild range of anxiety.

Drug and alcohol use, and SHPs

Interest in the lifestyle habits of medical students in particular has been stimulated by reports suggesting that a large proportion consume above the recommended alcohol intake and a smaller, but significant proportion, engage in illegal drug use (e.g. Birch, Ashton, & Kamali, 1998). In a comparison of dental and medical students, Newbury-Birch et al. (2002) found that 47% of second year dental students exceeded the recommended weekly safe limit of units of alcohol compared to 33% of medical students. For dental students this

decreased in their final year (25%) although increased in medical students (43%). Pickard et al. (2000) reported that 86% of their second-year medical student sample drank alcohol and 53% of drinking men and 51% of women exceeded the recommended weekly alcohol intake. When compared with the results of a community survey this figure was higher than that for age-matched peers across the population in general. Both Pickard et al., and Ashton and Kamali, reported that more men than women exceeded the recommended levels.

In relation to illegal drugs Ashton and Kamali (1995) reported that 50% of their sample of medical students admitted to having ever used cannabis. In the study by Pickard et al. (2000) 28% of men and 36% of women had used illegal drugs. One difficulty with these studies was that no data relating to time period or frequency of drug use were provided, it was not clear whether these figures related to previous, or current experimentation or ongoing use.

There is limited data available on the alcohol and drug using habits of SHPs other than medical or dental students. Using the substance abuse subscale of the EAPI, Brooks et al. (2002) reported that 30% of trainee clinical psychologists had a probable substance abuse problem. The current literature review also identified a lack of research exploring the functional impact of drug and alcohol use in SHPs. In order to index the potential impact of substance misuse valid and reliable indicators of academic and professional functioning are required.

Stress and SHPs

Interest in stress-related problems in health professionals has contributed to a range of studies exploring similar problems in SHPs. Dollard

(2003) describes job stress as the harmful physical and emotional responses that occur as the result of a mismatch between the requirements of the job and the capabilities, resources or needs of the worker. The General Health Questionnaire (GHQ) has been widely used as a measure of the psychological and physiological symptoms associated with academic and clinical stressors such as those identified earlier in the review. Higher scores reflect endorsement of items relating to somatic symptoms, anxiety, insomnia, social dysfunction, and severe depression.

Cushway (1992) reported that 59% of a sample of clinical psychology trainees scored above the cut-off for 'caseness' on the GHQ. GHQ score was correlated with the number and frequency of stressors reported. Newbury-Birch et al. (2002) reported that 72% of dental students and 32% of medical students in their final year scored within the range indicative of psychological stress on the GHQ.

Moss and Paice (1999) note that "undue stress, even in the short term, has a detrimental effect on an individual's performance at work and in the context of health care it may impinge on the delivery of good-quality care." (Moss & Paice, 1999, p 203). Interestingly Nelson et al. (2001) reported that those graduate students in clinical psychology with higher grade point averages were likely to report more stress regarding coursework. This may be seen as consistent with the findings of Stout-Everly et al. (1994) that 61.7% of OT students reported that their stress strengthened their commitment to their training.

Dyrbye et al. (2006) note that although stress might motivate some students, their review of literature relating to American medical students

identified relationships between perceived stress and depression, anxiety, somatic symptoms, health problems and future risk of depression. Newbury-Birch et al. (2002) observed a significant relationship between stress and alcohol consumption although the cross-sectional nature of this study precludes any conclusions about causality. As with the other psychological problems discussed in relation to SHPs, gender appears to be a risk factor for stress with women experiencing higher levels than men (Cushway, 1992; Newbury-Birch et al.).

Summary

Self-report measures with normative cut-off scores identify potentially problematic levels of anxiety, depression, drug and alcohol use, and stress with varying frequency in the SHP population. Conclusions about rates of occurrence in comparison with the general population are limited by the lack of research directly comparing SHPs with demographic-matched controls. Further research is also required to explore the impact of these, and other psychological problems, in relation to the professional and academic functioning of SHPs. For such research to be useful it will be necessary to focus on the development of valid measures of academic and professional functioning.

The dependence upon self-report methodology also presents a problem. Research suggests that anxiety in particular may be overestimated by one of the most frequently used measures, the HADS. Without studies comparing self-report measures with diagnostic interviews it is difficult to distinguish between scores which are elevated in comparison with the normative sample, yet represent potentially transient symptomatology, and

clinically significant levels of a particular disorder. Despite these difficulties the existing research suggests that various subgroups of SHPs may be at risk for depression, anxiety, drug and alcohol use, and stress. Gender, stage of training, social support, personality and coping strategies have been implicated as risk factors for psychological distress and warrant further investigation in future research.

To date, the majority of research into SHPs comes from studies of medical students. Several studies have combined samples of SHPs from different disciplines and in some cases graduate students working in a research context. These scenarios are problematic for a number of reasons. Although SHPs share the experience of being in vocational training, training programmes differ greatly in terms of content and structure. For example British medical training begins at undergraduate level with a number of years academic study prior to undertaking clinical placements. Clinical psychology training on the other hand is a postgraduate level programme characterised by combined academic and clinical work over three years. The various demands of different SHP courses and the previous levels of academic and clinical experience obtained by individuals entering these programmes might be expected to have a bearing on emotional responses to training demands and perhaps the differing distribution of problems observed across the years of training. Such differences limit the generalisability of findings from one group of SHPs to another and indicate the need for research pertaining to particular subgroups. Although the majority of existing literature relates to medical students, a number of studies (Brooks et al, 2002; Kuyken et al., 1998, 2000, 2003) have identified the importance of looking at what has been

termed the 'psychological adaptation' of Trainee Clinical Psychologists (TCPs). The remainder of the literature review will therefore focus on this group.

Theoretical understanding of psychological problems in Trainee Clinical Psychologists

Overview

The previous section reviewed a relatively large body of literature on problems of psychological adaptation in SHPs. As previously discussed, this research tends to focus on the prevalence rather than aetiology of such problems. Research seeking to identify factors which might be implicated in their development and maintenance have tended to do so without reference to a specific theoretical framework. Our understanding of psychological problems in SHPs largely consists of an awareness that they occur, and a range of fairly disparate factors which might constitute risk or protective factors. Systematic exploration of these factors within a theoretical framework would facilitate predictions about which individuals might be at risk and provide guidance for appropriate interventions.

Existing research into the psychological adaptation of TCPs has identified associations between various facets of psychological adaptation (depression, anxiety, self-esteem and work adjustment) and independent variables such as social support, personality and expectations about training (Brooks et al, 2002; Kuyken et al., 1998, 2003). Kuyken et al. (1998, 2003) drew on the transactional theory of stress and coping (Lazarus & Folkman, 1984) an approach commonly used in the field of occupational stress (Payne,

1999). This research will be reviewed in the following section before considering other bodies of literature which might provide additional theoretical perspectives.

Transactional theory of stress and coping

The transactional theory of stress and coping (Lazarus and Folkman, 1984) posits that an individual's appraisals of the stressful situation and their own coping resources are fundamental to the experience of stress. If a stressor is appraised as threatening, and coping resources for dealing with this stressor are appraised as inadequate, the individual is likely to experience resulting feelings of anxiety, anger, sadness, jealousy and guilt among others (Lazarus, 1993; Payne, 1999). Furthermore the appraisals made by an individual are said to influence whether attempts to cope are problem-focused or emotion-focused (e.g. avoidance). In general problem-focused (or approach-focused) coping tends to be associated with better psychological adaptation (see meta-analysis by Suls and Fletcher, 1985). However, where stressors are time-limited and unchangeable problem-solving strategies may be counterproductive and avoidance may be a useful coping strategy in the short-term (Lazarus, 1993). In so far as different coping strategies might be appropriate and effective in different situations, stress might be perceived as the result of inappropriate appraisals leading to the choice of an ineffective or counterproductive coping strategy.

Kuyken et al. (1998) examined how appraisals of threat, and coping processes contributed to the problems of psychological adaptation observed in Trainee Clinical Psychologists (TCPs). On the basis of Lazarus' theory they predicted that threat appraisals would be associated with greater use of

avoidance coping, and control appraisals with greater use of approach coping and less use of avoidance coping. Unexpectedly, threat appraisals were associated with increased use of both types of coping, and appraisals of control were associated with avoidance coping only. The hypothesis that greater use of avoidance coping would be associated with poorer psychological adaptation (depression, anxiety, self-esteem, and work adjustment problems,) was supported. Limitations of this research included the use of a measure of appraisal developed specifically for this study and therefore not previously validated, and the cross-sectional design which precluded conclusions about temporal relationships between the variables.

Kuyken et al. (2003) built on the earlier research by carrying out a follow-up study one year later, at which time the same participants completed the original measures for a second time. Kuyken et al. reported that consistent with Lazarus' theory, appraisals of greater threat and lower control predicted poorer psychological adaptation over time. Avoidance coping was identified as a mediator of the relationship between appraisals of threat and controllability, and psychological adaptation (depression, anxiety, self-esteem and work adjustment). Unlike appraisals of controllability, and in contrast to the predictions made by transactional theory, appraisals of threat also had a direct impact on psychological adaptation.

Additional indicators of professional functioning were also incorporated into this second study. The authors suggested that given the dual status of trainee clinical psychologists as postgraduate students and healthcare employees, professional functioning should be gauged by approach to learning in addition to work adjustment. As discussed previously, deep

learning approaches are associated with improved learning outcomes. However, the appraisal and coping processes outlined by Lazarus and Folkman (1984) did not appear to be associated with learning approach.

Summary

Concepts consistent with Lazarus and Folkman's (1984) transactional theory of stress and coping have been the focus of several studies of psychological adaptation in TCPs. The experiences of TCPs could be partly explained by this theory, appraisals of threat and controllability predicted greater use of avoidance coping which was in turn associated with poor psychological adaptation. However, in contrast to the hypothesised mediating role of coping, direct effects of appraisal on psychological adaptation were also observed, and the model had less explanatory value for choice of learning approach. Given the emphasis on the dual role of TCPs it would seem important that models have explanatory value for personal (affective), professional, and academic outcomes. Based on the results of Kuyken et al. (2003) and the indicators used, transactional theory seems to be lacking explanatory power for the latter (as indirectly measured here by learning approach). This highlights a need for future research to investigate theoretical approaches which might contribute to understanding of both areas, as well as consideration of how such outcomes are measured. As Kuyken et al. note, in relation to the various dimensions of psychological adaptation, the amount of variance explained by their models is moderate at best and support for the various hypotheses stated by transactional theory was therefore equivocal.

In applying theories of stress to problems of psychological adaptation such as depression and anxiety it is assumed that these experiences are

related to stress in some way. This approach identifies several contributory processes (appraisals and coping), although the findings indicate that there are additional factors or processes which might be implicated in the development of specific problems.

Perhaps the most significant contribution made by proponents of the occupational stress approach is the application and systematic testing of a theory. In identifying additional models and areas of theory which might contribute to our understanding of psychological problems in SHPs, parallels might be drawn between the academic role of the SHP and undergraduate students. As indicated earlier, psychological problems in this latter group have been widely studied. In the following section the theoretical models which have contributed to our understanding of these problems will be considered.

Conceptualising the psychological problems of undergraduate students

Since the cognitive revolution that occurred in clinical psychology in the late 1960s to early 1970s, cognitive theories have dominated approaches to conceptualisation and intervention in relation to a broad range of psychological disorders (Dobson & Dozois, 2001). As might be expected given the tendency to use student samples in psychological research (Gallander Winter et al., 2001), the popularity of cognitive approaches is reflected in the literature relating to psychological problems in undergraduate students.

Dobson and Dozois (2001) note that although cognitive theory has provided a general therapeutic approach to psychopathology, almost all applications of such theory are to specific problems, i.e. specific models and

interventions have been developed for particular disorders including depression (Beck, 1967; Abramson, Metalsky, & Alloy, 1989), generalised anxiety (Beck, Emery, & Greenberg, 1985), panic disorder and agoraphobia (D. M. Clark, 1996), and low self-esteem (Fennell, 1999). Cognitive-behavioural therapies derived from these models are highly effective in the treatment of a range of disorders and have been identified by the government as the psychological treatment of choice for depression (NICE, 2004a), anxiety, panic disorder, and agoraphobia (NICE, 2004b) among other disorders. Although the various cognitive models share the view that cognitive activity mediates the individual's affective response to his or her environment, the precise nature of the maladaptive cognitions implicated in these models and subsequent intervention varies. It is beyond the scope of the current literature review to consider the full range of problems observed in students and the various cognitively influenced theoretical models. In reviewing the literature relating to undergraduate students it is thus necessary to select a particular disorder to focus on.

Although research regarding the impact of psychological problems in SHPs and undergraduate students is sparse, a number of studies have demonstrated relationships between depression and academic performance in undergraduates (Andrews et al., 2006), and depression and factors such as professional functioning and academic performance in SHPs (D. C. Clark & Zeldow, 1988; Kuyken et al., 2003; Stewart et al., 1995). Given the frequency with which depressive symptoms are reported, these possible outcomes constitute a significant concern for professional training programmes. The potential contribution of cognitive models of psychopathology to our

understanding of psychological problems in TCPs will therefore be demonstrated using the exemplar of cognitive models of depression.

Theoretical understanding of depression in undergraduate students

The two most frequently studied cognitive theories in both the student and the general population are Beck's theory of depression (Beck, 1967, 1987) and the hopelessness theory of depression (Abramson et al., 1989). The models of depression set out in these theories are commonly conceived of as cognitive diathesis-stress¹ models, both specify a form of cognitive vulnerability which is said to interact with stressors to cause depression. Brief summaries of the main features of these models are provided below before reviewing the evidence relating to their utility as explanations of depressive symptomatology in student populations.

Beck's theory of depression

According to Beck's theory of depression (1967, 1987) the dysfunctional attitudes held by some individuals constitute a vulnerability to depression. These Dysfunctional Attitudes (DA) often relate to themes of inadequacy, failure, loss and worthlessness. The most commonly used measure of DA is the Dysfunctional Attitudes Scale (DAS) developed by Weissman and Beck (1978). In the event that DA are activated by negative life events, they produce cognitive distortions in an individual's perception of the self, the world and one's future (the negative cognitive triad). These are

¹ It is of note that in the stress literature previously reviewed the term stress is used to describe a consequence or outcome, in relation to the cognitive theories of depression discussed here the same word is used to describe the negative life events (or stressors) which interact with the specified cognitive diatheses (cognitive vulnerability).

manifested in the experience of negative automatic thoughts and the subsequent experience of symptoms of depression.

Hopelessness theory of depression

The cognitive vulnerability specified by hopelessness theory (Abramson et al., 1989) comprises the combination of a depressogenic attributional style (the attribution of negative life events to stable and global causes) and the tendency to make inferences about negative consequences of events and negative characteristics of the self in light of particular events. This combination of elements can be measured using the Cognitive Style Questionnaire (CSQ), a tool used in the recent Cognitive Vulnerability to Depression project (CVD; Alloy et al., 2000; Alloy et al., 1999). However the CSQ has been a relatively recent development and its predecessor, the Attributional Style Questionnaire (ASQ; Peterson et al., 1982) continues to be the more widely used measure. One limitation of this is that the ASQ measures only the depressogenic attributional style component of the cognitive vulnerability put forward by hopelessness theory.

Hopelessness theory (Abramson et al., 1989) suggests that when confronted with a negative event of importance to the individual, the response described above leads to hopelessness, a state of expectation that negative outcomes or events will occur and that these are outside one's control. Hopelessness is postulated to be a proximal cause of depressive symptoms, in particular symptoms of a subtype of depression known as Hopelessness Depression (HD). Symptoms of HD include retarded initiation of voluntary responses, sad affect, lack of energy, difficulty in concentration and sleep disturbance.

Tests of cognitive theories in student samples

University students often present a convenient and willing sample of participants and several large studies of the Beck and hopelessness theories of depression have been able to recruit significant numbers of participants through using student samples. Using the HADS, studies have estimated that 12-17% of students experience possible or probable case depression (Andrews & Wilding, 2004; Webb, Ashton, Kelly, & Kamali, 1996). As described earlier, the cognitive-diathesis models of depression posit that cognitive vulnerabilities interact with stressors in the development of depression. It is recognised that students are subject to a range of academic and social stressors (RCP, 2003), making them an attractive population in which to study these models. The most commonly explored elements of these theories are the hypothesised cognitive vulnerabilities, as their position in the aetiological chain has identified them as potential targets for intervention. The role of cognitive vulnerabilities in the development of student depression will be discussed in subsequent sections.

Diathesis-stress component of Beck's theory

Studies of students have yielded partial support for the stress-diathesis component of Beck's theory (Beck, 1967, 1987). Brown, Hammen, Craske, and Wickens, (1995) reported that higher scores on the DAS interacted with a stressor (poorer than expected performance on an exam) to predict increases in depressive symptoms. Similar findings were described by Klocek, Oliver, and Ross (1997). However not all studies have reported results which are consistent with the hypothesised interaction.

Abela and D'Alessandro (2002) administered measures of DA (the DAS) and depressed mood to high school seniors before and after they received their college admissions decision. They found that participants with high levels of DA showed greater increases in depressed mood immediately following a negative decision than individuals with lower levels of DA. However, contrary to their predictions enduring depressive mood responses were not observed. These findings suggest that the low mood experienced by students may be of a more transient and less severe nature than in clinical samples. Although Abela and D'Alessandro observed statistically significant increases in depressed mood after receiving bad news, this does not automatically equate to clinically meaningful change or diagnosable level of symptoms and therefore mood changes might be expected to return to baseline over a more extended period. However, an important limitation of this study is the use of a measure of depressive affect rather than a more global measure of depression which captures a range of affective, cognitive, and physiological depressive symptoms (such as the BDI). This presents problems for drawing conclusions about the duration and severity of the wider range of depressive symptoms which contribute to diagnostic criteria. A further possibility, as presented by Brown et al. (1995) is that characteristics of nonclinical analogue samples (e.g. low rates of diagnosable disorders, and stressors of limited severity) prevent the hypotheses made by models of psychopathology being adequately tested. Some of these issues will be revisited in later sections when considering the utility of diathesis-stress models for identifying students at risk of depression.

Dykman and Johll (1998) administered the DAS and BDI to psychology students at the beginning and end of a 14-week period. At the second time-point they also administered the Negative Life Events Questionnaire (NLEQ) to assess the occurrence of negative life events or stressful situations during this time. When the full sample of students was considered no interaction between stress and DA was observed. However when participants who showed symptoms of depression at time 1 were excluded from the analysis a DA-stress interaction was observed for females but not males. Dykman and Johll observed that much of the overall variance in time 2 depression was explained by time 1 depression, leaving little room for additional predictors such as DA. The authors argue that identifying asymptomatic nonclinical samples provides a better test of the role of cognitive vulnerability when Beck's model is considered as an acute onset model. Again the utility of a student sample was commented on as few of the stressors which occurred within the given time period were considered severe in nature and in most cases scores on the BDI did not reach clinically significant levels.

There are a number of possible explanations for the inconsistent findings with regards to the impact of the interaction between DA and negative life events in student samples. Firstly, the use of different measures may be significant. Abela and D'Alessandro (2002) used a measure of affect rather than a measure such as the BDI which assesses a number of dimensions of depressive symptomatology. It is therefore possible that they were measuring a slightly different construct which might have a different relationship with the DA/stress interaction when compared with a broader assessment of depressive symptomatology. Secondly, it has been suggested that scores on

self-report depression inventories indicative of problems in student samples represent qualitatively different constructs to those in clinical samples (Coyne, 1994), and therefore models of psychopathology might be of limited relevance to student samples. However, this view is not shared by all (e.g. Vredenberg, Flett, & Krames, 1993). A third possibility is that the stressors routinely experienced by students are not of a severe enough nature to interact with DA to cause depression (Coyne, 1994; Coyne & Whiffen, 1995). Some of these issues will be discussed further in subsequent sections.

Diathesis-stress component of hopelessness theory

The most commonly tested element of the diathesis-stress component of the hopelessness theory (Abramson et al., 1989) is the interaction between depressogenic attributional style and stress. This is despite assertions made by hopelessness theory that pessimistic attributional style plus negative inferences about the self and consequences of the event constitute the cognitive vulnerability. In one of the few studies to look at the wider cognitive vulnerability stipulated by the hopelessness theory, Metalsky and Joiner (1992) recruited a sample of 171 university students and presented results supporting an interaction between all three features of the cognitive diathesis identified by hopelessness theory, and depressive symptoms.

Alloy, Lipman, and Abramson (1992) tested the attributional vulnerability hypothesis using a retrospective high-risk design. They found that consistent with predictions made by the hopelessness theory of depression, students with a high-risk attributional style (characterised by internal, stable and global attributions for negative events) were more likely to exhibit past

major depressive disorder and have experienced a greater number and more severe episodes than low risk participants.

In a prospective test of the attributional element of the hopelessness theory Metalsky, Halberstadt, and Abramson (1987) measured the stability and globality aspects of attributional style and mood prior to midterm exams. Although immediate depressive mood was predicted solely by exam outcome, enduring depressive mood reactions were predicted by the hypothesised attribution- exam outcome interaction. This finding has since been replicated in another study utilising the mid-term design (Metalsky, Joiner, Hardin, & Abramson, 1993).

Over more recent years the Temple-Wisconsin CVD project (Alloy et al., 1999; Alloy et al., 2000) was developed to provide a longitudinal test of both the Beck and hopelessness theories of depression. This study benefited from a large sample of students from 2 university sites and a retrospective behavioural high-risk design. Participants completed the DAS and CSQ. Those scoring in the highest and lowest quartiles for both measures were identified as high risk and low risk groups respectively. Participants were screened and excluded if they met criteria for any current axis one disorder and those remaining were reassessed on the measures of cognitive vulnerability and psychopathology at regular intervals over a 2 year period. Retrospective findings confirmed that the cognitively high-risk group had a higher life-time prevalence of major and minor depression (Alloy et al., 2000). Furthermore the high-risk group were more likely to develop a first onset or recurrence of major and minor depression within the follow-up period.

Although these studies supported the vulnerability hypotheses of the two theories, the composite of DA and negative cognitive style did not allow for conclusions about the relative predictive value of the two forms of vulnerability in predicting the occurrence of depression in students. Haeffel et al. (2003) have since tried to 'unpack' the generic cognitive vulnerability identified in the studies of Alloy et al. (1999, 2000) by directly comparing the contribution of DA (measured by the DAS) and negative cognitive style (as measured by the CSQ). Using a retrospective behavioural high-risk design they found that the CSQ was a significant predictor of past episodes of major depression. The DAS was not significantly associated with lifetime history of major depression. The authors conclude that negative cognitive style therefore made a greater contribution to the previous findings of Alloy et al (1999, 2000) than DA. However the retrospective design of the study limits conclusions about causal relationships between depression and negative cognitive style.

Summary

Paralleling trends in the wider literature, depression in students has been repeatedly conceptualised within cognitive diathesis-stress models such as Beck's theory (Beck 1967, 1987) and the hopelessness theory of depression (Abramson et al., 1989). Indeed, it seems that students have often been used as a sample of convenience within which to test the central tenets of these theories rather than for the purpose of adding meaningful information to the existing literature about student depression. The mid-term paradigm has proven useful for gauging individual differences in depressive responses to a widely experienced negative event (i.e. failure or poorer than anticipated

performance). However this does not do justice to the range of academic and social stressors experienced by undergraduate students. Many of the studies discussed previously highlighted potential limitations of using nonclinical student samples, particularly in relation to the severity of the stressors they might encounter within a given time period and the low base rate of diagnosable depressive disorders. It has been suggested that these factors make it difficult to design studies powerful enough to detect interactions between cognitive vulnerability, stress, and depressive symptoms (Coyne, 1994; Coyne & Whiffen, 1995). However, this line of argument seems to relate primarily to concerns about generalising findings from student samples to clinical samples, or testing models of psychopathology in nonclinical samples. The emphasis of the current literature review is somewhat different in that these nonclinical (i.e. student) samples are of interest in their own right. Although student populations have often been used as samples of convenience, the findings generated by such research make an important contribution to our understanding of their experiences as a specific population of interest.

Findings regarding the diathesis-stress component of Beck's theory (1967, 1987), are mixed. In some studies the interaction between DA and negative life events was associated with an increase in depressive symptoms, there was some indication that this effect was not enduring and was stronger for females and individuals who were initially asymptomatic. In terms of the hopelessness theory (Abramson et al., 1989) a negative attributional style is a relatively consistent predictor of a history or future likelihood of depression in student samples. Although many studies have failed to assess the

contributions of the other cognitive diatheses of the hopelessness model those that have (e.g. Metalsky & Joiner, 1992) have found support for the hypothesised interactions. In a direct comparison of the two theories, findings from the CVD project (Haefel et al., 2003) suggested that the cognitive diatheses postulated by hopelessness theory were better predictors of a history of depression than those outlined by Beck.

Overall the cognitive diathesis mechanisms identified by Beck (1967, 1987) and Abramson et al. (1989) seem relatively well supported by a number of studies of students including the large, multi-site CVD project. This suggests that measures such as the DAS and CSQ may have a role to play in identifying university students at risk of depression. In the following section consideration will be given to the utility of such cognitive constructs in relation to the presentation of psychological problems in TCPs.

Applying cognitive models to problems of psychological adaptation in TCPs

Cognitive models of depression and TCPs

It has been established by previous research that as a group TCPs generally show good overall psychological adaptation as indexed by measures of self-esteem, depression, anxiety and work adjustment (Brooks et al., 2002; Kuyken et al., 1998). However, Kuyken et al. reported that a significant proportion of trainees (25% or more) scored at least one standard deviation above the standardisation sample mean for problems of anxiety, depression, self-esteem and work adjustment. Twenty-six percent of the TCPs in this sample scored one standard deviation above this cut-off in relation to depression. Given that measures of DA and attribution demonstrated some

predictive validity in relation to episodes of depression amongst undergraduate students studies replicating this finding with TCPs would provide possible ways of identifying individuals who may be vulnerable to depression. Past studies with TCPs have highlighted a range of stressors (Cushway, 1992) which may interact with these hypothesised cognitive diatheses. As in the undergraduate population, without diagnostic interviews to corroborate findings it is difficult to establish whether scores falling outside normative cut-offs relate to diagnosable levels of depression. The potential utility of the cognitive vulnerabilities identified by the cognitive models of depression would suggest that consideration of the cognitive vulnerabilities stipulated in cognitive models of other disorders are also worth consideration.

Comorbidity of problems in TCPs

The emerging profile of psychological adaptation in TCPs suggests that within the generally well adapted group there may be a subgroup of individuals experiencing one or more problems (Brooks et al., 2002). Brooks et al reported that 41% of the sample accounted for a cumulative percentage of 63% of scores being over the cut-off in relation to anxiety, depression, self-esteem, and work adjustment. This indicates comorbidity of problems. Accordingly previous studies of TCPs have sought to identify factors which might be associated with the development of the range of problems of psychological adaptation, e.g. coping, social support, and personality (Brooks et al., Kuyken et al. 1998, 2003). Beck's model of emotional disorders has stimulated the development of cognitive models for a range of psychological disorders and problems such as generalised anxiety, panic disorder and agoraphobia, and low self-esteem (Beck et al., 1985; D. M. Clark, 1996;

Fennell, 1999). As with the cognitive model of depression the focus is on the relationship between overt symptoms and cognitions, however the nature of the specific cognitions of interest vary (DeRubeis, Tang & Beck, 2001). It might therefore be difficult to operationalise the various cognitive models within a single framework by which to understand the range of problems within the profile of psychological adaptation observed in relation to TCPs.

One direction for future research might be to explore the possibility of using a battery of measures (assessing the various cognitive vulnerabilities identified by the relevant models of disorders) to identify individuals at risk of experiencing multiple problems. Alternatively, Verplanken, Friberg, Wang, Trafimaw, and Woolf (2007) have recently suggested that although different types of negative self-thoughts (mental content) may be linked with particular disorders, such mental contents are associated with the habit of engaging in negative self-thinking (mental process). When negative content was controlled for, negative self-thinking predicted low self-esteem, anxiety and depression in a non-clinical sample 9 months later. Identification of such underlying processes which might be common to a number of psychological problems offers an additional direction for research with TCPs. It would also be useful to establish whether individuals with comorbid problems are more likely to experience adverse outcomes associated with professional and academic functioning than those without any problems or problems in one area, and which problems are most associated with such outcomes.

The most frequently explored aspect of the hopelessness theory of depression (Abramson et al., 1989) is the concept of attributional style. Indeed, hopelessness theory evolved from the attributional reformulation of

helplessness theory (Abramson, Seligman, & Teasdale, 1978). Also known as explanatory style, pessimistic attributional style (the tendency to make internal, stable and global explanations for negative events) has been explored in relation to a range of affective problems (anxiety, depression and self-esteem) and fields such as achievement (Peterson, McClellan-Buchanan, & Seligman, 1995). The potential explanatory value of attributional style for different elements of the psychological adaptation and professional functioning of TCPs identifies it as a possible candidate for future research. A brief discussion of some of the research findings follows.

Attributional Style and psychological adaptation in TCPs

Attributional style has been proposed as a cognitive personality construct reflecting a consistency in the way people explain the causes of bad events (Pervin, 1985; Peterson et al., 1995). An association between personality and psychological adaptation in TCPs was reported by Brooks et al. (2002). Poor personality adjustment was predictive of problems with self-esteem, depression, anxiety and work adjustment. In the wider literature various personality traits have been linked with a range of affective outcomes (e.g. Costa & McCrae, 1992; Trull & Sher, 1994) suggesting that this might be one way of identifying individuals at risk of such outcomes. However, L. A. Clark, Watson, and Mineka (1994) question the potential for directly modifying personality traits. Although broadly considered a trait-like personality construct, attributional style has been proposed as a potentially modifiable vulnerability factor for a range of adverse experiences (DeRubeis & Hollon, 1995; Forsterling, 1990; Peterson & Seligman, 1984) and which might be addressed via cognitive behavioural therapy (Seligman, Schulman, DeRubeis,

& Hollon, 1999). This suggests that attributional style might be a useful personality factor to consider in future studies of TCPs.

In a review of the literature relating to attributional style, and anxiety and depression, Mineka, Pury, and Luten (1995) suggested that by virtue of the relationship between depressive attributional style and negative affectivity (the disposition to experience negative aversive emotional states), attributional style may not be specific to depression but related to anxiety also. Consistent with this hypothesis, Luten, Ralph, & Mineka (1995) reported the results of two studies with college students which suggested that pessimistic attributional style was associated with both anxious and depressed mood.

Both the reformulated learned helplessness model and the hopelessness model of depression stipulate that to the extent that an individual makes global and stable attributions for negative events, and to factors within his or her control (internal attributions), loss of self-esteem is more likely. Stoltz and Galassi (1989) reported that depressed students with low self-esteem made more internal characterological attributions for bad events than those without low self-esteem. However non-depressed students made more internal behavioural attributions than depressed students leading the authors to suggest that some internal attributions can be adaptive in terms of a sense of control over outcomes being a positive factor.

According to helplessness theory pessimistic attributional style leads to a diminished sense of personal control. Schulman (1995) suggests that in relation to school and work achievement this might affect performance through a range of behaviours. According to Schulman someone with a pessimistic explanatory style for achievement related failures might be less

likely to take initiative, persist under adversity, take risks, be decisive, engage in quality problem-solving strategies, and be less assertive than someone with an optimistic style. In a review of academic achievement literature Peterson (1990) reported a range of studies linking attributional style with school grades, help-seeking behaviour, aspiration levels, definition of achievement goals, and use of effective learning strategies. Having identified links between attributional style, and college grades and dropout, and sales productivity, Schulman queried the mechanisms by which attributional style might affect performance. In future studies of TCPs it would be interesting to explore possible relationships between attributional style and the use of particular learning styles already associated with psychological adjustment in this population (Kuyken et al., 2003).

A brief review of the literature indicates that there is a theoretical basis for predicting associations between attributional style and dimensions of psychological adaptation identified as problematic in samples of TCPs. As a cognitive construct of clinical interest it also provides a potential point of intervention or prevention.

Conclusion

Normative cut-offs on self-report measures of depression, anxiety, stress, and alcohol and drug use identify potentially problematic levels of symptomatology with varying frequency across a range of SHP groups. One useful direction for future research would be to establish how these relate to rates of clinical disorders via diagnostic interviews. Further research is also required to gauge the functional impact of problems of problems on personal,

professional and academic functioning, although the indications are that psychological problems might be associated with a range of negative outcomes. To date a number of risk factors for poor psychological adaptation in SHPs have been identified, including gender, stage of training, social support, personality and choice of coping strategy. Further research is required to understand how these factors behave in samples of SHPs from different professional groups.

In order to design and implement effective interventions for psychological problems it is necessary to explore theoretical explanations of their aetiology. Perhaps in light of the health professional aspect of their role, previous explanations of the psychological adaptation of TCPs have drawn on models prominent in the occupational health literature. The aetiological chain proposed in the transactional theory of stress and coping was partially supported by the findings of Kuyken et al. (1998, 2003) although it explained only a moderate amount of variance in the various dimensions of psychological adaptation considered as outcome variables, and had little predictive value with regards to choice of approach to learning.

In seeking to identify alternative theoretical frameworks consideration was given to the other role of TCPs, that of the student. Due to the potential to recruit large samples from undergraduate student populations there is a considerable body of literature relating to the applicability of various models of psychopathology. Taking the example of depression, the cognitive vulnerabilities specified in both the Beck (1967, 1987) and hopelessness models (Abramson et al., 1989) appear to have some utility in identifying students at risk of depression. As key constructs addressed by cognitive

behaviour therapy they also provide suggestions about potentially effective interventions. Research exploring the role of cognitive vulnerabilities in TCP experiences of depression is therefore warranted. Furthermore, an initial review of the literature indicates that in addition to depression, attributional style might also be of relevance to the other dimensions of psychological adaptation in which TCPs have been observed to experience difficulty. Further research in this area is required to support the suggestion that models of psychopathology might make a useful contribution to our conceptualisations of psychological problems in TCPs and other SHP groups.

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Empirical Paper

Personality, attributional style and psychological adaptation in
Trainee Clinical Psychologists.

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Abstract

It is well-established that a subgroup of Trainee Clinical Psychologists are at risk for problems of psychological adaptation relating to anxiety, depression, self-esteem and work adjustment. Previous research has demonstrated relationships between various of the Big-Five personality traits and dimensions of psychological adaptation. In addition, individual differences in attributional style have been identified as potentially modifiable vulnerability factors for a range of outcomes. In the current study 189 participants completed self-report measures of psychological adaptation, personality and attributional style in an online survey. Thirty-four percent of the current sample experienced problems in relation to one or more of anxiety, depression, self-esteem and work adjustment. Structural equation modelling was used to analyse the data. Personality was broken down into two latent factors, stability (neuroticism reversed, agreeableness, and conscientiousness), and plasticity (extraversion and openness). Stability accounted for 84% of the variance in psychological adaptation. When stability was controlled for, attributional style accounted for an additional 6% of the variance but was not a significant predictor. Given its clinical relevance attributional style was also considered separately and was found to be a significant predictor of psychological adaptation. Implications for screening and intervention are discussed.

Introduction

The psychological adaptation of Trainee Clinical Psychologists

Trainee Clinical Psychologists (TCPs) are a generally well-adjusted population, although a subgroup experience problems of psychological adaptation relating to anxiety, depression, work adjustment (a measure of an individual's satisfaction with various features of their work) and self-esteem (Brooks, Holtum, & Lavender, 2002; Kuyken, Peters, Power, & Lavender, 1998; Kuyken, Peters, Power, Lavender, & Rabe-Hesketh, 2000). This finding has been replicated across a number of studies using the Employee Assistance Programme Inventory (EAPI; Anton & Reed, 1994). Brooks et al. reported that 41% of TCPs scored above the cut-off for problems in one or more of the areas of anxiety, depression and self-esteem. Kuyken et al. (1998, 2000) found that for each of the psychological adaptation subscales, more than 25% of the sample reported problems. Figures from the Brooks et al. study were slightly lower, as indicated by 23%, 18%, 14% and 8% of the sample scoring above the cut-off in relation to self-esteem, anxiety, depression and work adjustment respectively.

Although the functional consequences of poor psychological adaptation have received limited attention in samples of TCPs, depression has been linked with likelihood of failing to complete training (D. C. Clark & Zeldow, 1998) and academic performance (Stewart et al., 1995) in other groups of Student Health Professionals (SHPs). The Royal College of Psychiatrists (RCP, 2003) identified concerns about distress in SHPs with regards to the possible consequences for clients. Within the literature relating to psychologists and other psychotherapists, distress is acknowledged to have

an adverse effect on their professional conduct and to bear a cost to client care (Coster & Schwebel, 1997; O'Connor, 2001; Sherman, 1996; Sherman & Thelen, 1998). In doctors, job satisfaction has been linked with client satisfaction (Firth-Cozens, 1999). In terms of the impact of problems of psychological adaptation on academic functioning, Kuyken, Peters, Power, and Lavender (2003) reported that self-esteem problems, anxiety and depression were predictors of approaches to learning associated with poor academic outcomes.

The longitudinal study conducted by Kuyken et al. (2000) indicated that TCPs experiencing difficulties relating to depression, anxiety, self-esteem, and work adjustment at the beginning of the course continued to do so throughout. Additionally, over the course of training increases in the number of trainees experiencing work adjustment problems and depression were observed. Such findings indicate that psychological adaptation may be influenced by factors both external and internal to the individual. In relation to the latter, research has identified appraisals of threat, coping and social support (Kuyken et al., 1998); personality adjustment, and expectations about training (Brooks et al., 2002) as predictors of psychological adaptation.

Although previous research with TCPs has identified personality as a possible predictor of psychological adaptation, research into the role of individual differences has not utilised the Five-Factor-Model (FFM) of personality, which is arguably the most dominant model in personality psychology today (McCrae & Costa, 2003). The current study explores the value of using the FFM of personality as a predictor of psychological adaptation. To date, no research has drawn on the theoretical explanations of poor psychological adaptation commonly used in mental health literature. In

this study, attributional style (Peterson et al., 1982; Peterson & Villanova, 1988), which is a cognitive style that links to both the personality and mental health literature is used as a predictor of psychological adaptation in addition to personality. The following sections review the contributions first of personality, and second of attributional style, to psychological adaptation.

Personality

Previous findings

Brooks et al. (2002) conceptualised personality within Millon's biosocial-learning theory of personality, according to which personality is described along dimensions of motivating aims, cognitive modes and interpersonal behaviours or styles (for a comprehensive description see Strack, 1999). Brooks et al. (2002) reported that TCPs scoring in the poorly adjusted range on the Millon Index of Personality Styles scored significantly higher on measures of self-esteem and work adjustment problems, depression and anxiety. However, just 8% of the sample scored within the maladjusted personality range, compared with 41% having a significant problem in relation to one or more of anxiety, depression, low self-esteem and work adjustment. This suggests that the cut-off for poor personality adjustment failed to identify all individuals experiencing problems of psychological adaptation. Regression analyses indicated that personality adjustment was a significant predictor of anxiety, depression and work adjustment (self-esteem was not included in this analysis) although the authors note that the maximum variance accounted for by personality adjustment was 40%.

Based on the observation that individuals experiencing difficulty at the beginning of training tend to do so throughout, Kuyken et al. (2000) also suggested that personality might be implicated. They hypothesised that a personality dimension such as neuroticism (or negative affectivity) might underlie ongoing difficulties. Neuroticism is considered to be one of the 'big five' personality traits comprising the Five-Factor-Model (FFM) of personality (John & Srivastava, 1999; McCrae & Costa, 1999), which is reviewed below.

The Five-Factor-Model of Personality

The FFM is a descriptive model, or taxonomy of traits (John & Srivastava, 1999). Trait theory states that individuals can be characterised in terms of their tendency to show relatively consistent and enduring patterns of thoughts, feelings, and actions (McCrae and Costa, 2003).

The Big-Five personality dimensions encompass a number of specific traits and are known as openness (including having wide interests, being imaginative and insightful); conscientiousness (indicating a tendency to be organised, thorough and planful); extraversion (traits relating to activity, energy, dominance, sociability, expressiveness and positive emotions); agreeableness (including traits such as altruism, tender-mindedness, trust and modesty), and neuroticism (contrasting emotional stability with a range of negative affects including anxiety, sadness, irritability and nervous tension) (Benet-Martinez & John, 1998). For a comprehensive review of the methods by which the five personality dimensions comprising the FFM were identified, see Digman (1990).

The five personality dimensions comprising the FFM are generally considered as orthogonal factors comprising the most basic or fundamental trait dimensions (Costa & McCrae, 1992a). However, based on factor-analysis

of the factor correlations from 14 studies where measures of the Big-Five were used, Digman (1997) concluded that two higher-order factors were evident. The higher-order model has since been replicated in a number of more recent studies (e.g. DeYoung, 2006; DeYoung, Hasher, Djikic, Criger & Peterson, 2007; DeYoung, Peterson & Higgins, 2002). Emotional stability (neuroticism reversed), agreeableness, and conscientiousness form a first factor (labelled 'stability' by DeYoung et al., 2002), extraversion and openness form a second factor (labelled 'plasticity').

The FFM and psychological adaptation

The dimensions of neuroticism and extraversion have consistently received the most research attention, particularly in relation to two higher order (trait-like) dimensions of emotional experience known as Positive Affect (PA; encompassing a range of positive mood states) and Negative Affect (NA; a general dimension of subjective distress and dissatisfaction; Watson & Clark, 1992). The link between neuroticism and NA, and extraversion and PA appears so robust that a consensus is emerging in support of a temperamental model of personality and emotionality, whereby neuroticism and extraversion represent basic dimensions of affective temperament (e.g. L. A. Clark & Watson, 1999; L. A. Clark, Watson & Mineka, 1994; McCrae & Costa, 1991). Thus, individuals high in neuroticism have a predisposition to experience high levels of NA, as do individuals high in extraversion with regards to PA.

Similarities between facets of personality and affect at a trait level have stimulated interest in the relationship between personality and the occurrence of mood disorders. L. A. Clark et al. (1994) reported that NA/ neuroticism act as vulnerability factors for the development of both anxiety and depression,

predict a poor prognosis for the course of the illness, and may undergo changes as a result of the illness. PA/ extraversion had a more specific relationship with depression, again there were a number of pathways between the two.

Trull and Sher (1994) investigated the relationship between the FFM and Axis I disorders in a nonclinical sample of young adults. Individuals with a lifetime diagnosis (current or past) of anxiety or depression were characterised by higher neuroticism and openness, and lower extraversion, agreeableness and conscientiousness compared to those without this diagnosis. These findings are generally consistent with the conclusions drawn by Costa and McCrae (1992b) in their summary of the links between the different personality dimensions and mental health. Bienvenu, et al. (2001, 2004) found that individuals from a community sample diagnosed with a lifetime history of anxiety or depressive disorder exhibited significantly higher levels of neuroticism than those without these disorders. Furthermore, neuroticism seems to be related to the presence of multiple mood disorders (Cuijpers, van Straten & Donker, 2005).

Less research exists on the relationship between personality and the two other facets of psychological adaptation identified as important to TCPs (self-esteem and work adjustment). R.W. Robins, Tracy, Trzesniewski, Potter, and Gosling (2001) reviewed previous research and concluded that self-esteem was strongly positively correlated with emotional stability (neuroticism reversed), moderately positively correlated with extraversion and conscientiousness and weakly positively correlated with agreeableness and openness. Their own regression analyses indicated that the Big-Five accounted for 34% of the variance in self-esteem.

As with the other areas of psychological adaptation, neuroticism appears to be consistently related to work adjustment (job satisfaction). Grant and Langan-Fox (2006) reported that in a sample of managers, low neuroticism, with high extraversion and high conscientiousness predicted lower job dissatisfaction. High neuroticism and low conscientiousness or agreeableness predicted greater job dissatisfaction. The finding that neuroticism is important in predicting job dissatisfaction has been replicated in a number of samples of employed adults (Furnham, 1992; Judge & Bono, 2001; McManus, Keeling, & Paice, 2004).

As the research discussed so far indicates, neuroticism consistently emerges as a predictor or correlate of the facets of psychological adaptation pertinent to TCPs. With regards to the other personality dimensions the picture is not so clear. Although some studies have reported relationships it appears that they might be less consistent or significant predictors.

A frequent criticism of trait theory is that while trait models provide a description of dispositions and co-occurring behaviours, they lack explanatory value for the cognitive processes by which these dispositions are operationalised (e.g. McAdams, 1992; Pervin, 1985). Furthermore, although Costa and McCrae (1992b) identify a number of ways in which understanding an individual's personality profile might facilitate therapy, L. A. Clark et al. (1994) query whether it is possible to directly modify personality dimensions. In current clinical practice, where cognitive models of psychopathology are experiencing great popularity, cognitive processes are most frequently the target for intervention.

From the late 1950s onwards the popularity of cognitive approaches in psychology generally was also evident in the field of personality research

(Winter & Barenbaum, 1999), where interest developed in the study of individual differences in cognitive styles. The concept of cognitive style describes the characteristic and habitual way in which individuals interpret information to make sense of the situations that they encounter (Sternberg, 1995). Attribution theory introduces a cognitive style that describes how individuals explain events to themselves and identifies the functional consequences of such causal attributions (Weiner & Graham, 1999).

Attributional style

Definitions and theoretical origins

Attributional style¹ is defined as a “cognitive personality variable that reflects how people typically explain the causes of bad events involving themselves.” (Peterson, 1991, p1). Mitchell (1989) reported that pessimistic attributional style was negatively correlated with extraversion and positively correlated with neuroticism, findings corroborated by Poropat (2002). There are three dimensions of attributional style, internality versus externality (cause attributed to the self versus others); stability versus instability (the cause will either continue to be present or be absent in the future); and globality versus specificity (the cause will affect other areas of life or is restricted to this area only). To the extent that individuals make relatively internal, stable and global attributions for bad events, the term pessimistic attributional style is used (Peterson, McClellan Buchanan, & Seligman, 1995). Burns and Seligman (1989) reported that attributional style for negative events was relatively stable throughout adult life.

The concept of attributional style originated from the attributional reformulation of the learned helplessness model which states that a

¹ In some fields attributional style has also become known as ‘explanatory style’. In the interests of consistency the original term will be used throughout.

pessimistic attributional style for bad events contributes to a state of helplessness characterised by symptoms of sadness, anxiety, and low self-esteem (Abramson, Seligman, & Teasdale, 1978; Peterson & Seligman, 1984). A later revision of the learned helplessness model, the hopelessness theory of depression (Abramson, Metalsky, & Alloy, 1989) deemphasised the internality dimension and introduced an additional dimension of cognitive vulnerability, the tendency to make inferences about negative consequences of events and negative characteristics of the self. Both of these models can be described as diathesis-stress models in which the various cognitive vulnerabilities (diatheses) interact with negative events (the stress) in the development of helplessness or in the latter model, hopelessness depression. Pessimistic attributional style has continued to be the most routinely explored cognitive vulnerability component. It is associated with a number of facets of psychological adaptation which will be considered in the following section.

Attributional style and psychological adaptation

Robust methodologies utilising the retrospective behavioural high-risk paradigm have supported the hypothesis that pessimistic attributional style is a risk factor for depression. Alloy, Lipman and Abramson (1992) reported that high-risk individuals (i.e. those with a pessimistic attributional style) were more likely to have experienced past major depressive disorders than low-risk individuals. Studies that have measured both attributional style and the additional cognitive vulnerabilities specified by the hopelessness model of depression (inferences about negative consequences of the event and characteristics of the self) also support this finding (Haefffel et al., 2003). Retrospective designs cannot disconfirm the hypothesis that a pessimistic attributional style is a 'scar' remaining from previous episodes of depression.

However, using a prospective longitudinal design Mongrain and Blackburn (2005) controlled for previous episodes of depression (a known predictor of future episodes) and found that attribution style was still a significant predictor of the recurrence of the disorder. Luten, Ralph, and Mineka (1997) reported similar findings.

Despite assertions made by the earlier helplessness model (within which anxiety is conceived of as a symptom of helplessness) the role of attribution in anxiety has received less attention than in depression. However, studies which have found an association between attributional style and both depression and anxiety suggest that pessimistic attributional style might be non-specific to depression (Ahrens & Haaga, 1993; Luten et al. 1997). Some studies have failed to find this association (Metalsky & Joiner, 1992; Mongrain & Blackburn, 2005).

Self-esteem and work adjustment have again received less attention in relation to attributional style than anxiety and depression. Both the learned helplessness model (Peterson & Seligman, 1984), and hopelessness theory of depression (Abramson et al., 1989) assert that to the extent that causal attributions are internal, self-esteem will be lower. This hypothesis is supported by the findings that depressed participants with low self-esteem make more internal characterological (self-deprecating) attributions (Stoltz & Galassi, 1989) than non-depressed participants, and that self-esteem is associated with internal, stable, and global attributions for negative outcomes (Tennen, Herzberger, & Nelson, 1987). C.J. Robins and Hayes (1995) note that further research on the relationship between attributional style and self-esteem (also anxiety) would provide useful information about the specificity of attributional style to depression.

Although the relationships between attributional style and the correlates of work adjustment according to the EAPI (satisfaction, motivation, performance) have received less attention in research, the helplessness and hopelessness models specify a number of outcomes which might be hypothesised to impact on work adjustment. Symptoms such as passivity, apathy, retarded initiation, lack of energy, and difficulty concentrating might be expected to negatively correlate with satisfaction, motivation and performance. Accordingly research in occupational settings has demonstrated an association between attributional style, and outcomes such as sales productivity, likelihood of quitting the job, and job satisfaction (Furnham, Sadka, & Brewin, 1992; Phelps & Waskel, 1994; Schulman, 1995).

Research indicates that attributional style might be a vulnerability factor for the various facets of psychological adaptation identified as significant for TCPs. It also offers a potential point of intervention. Although a relatively stable trait, proponents of attributional style emphasise that it may be subject to change in response to therapy, or additional good or bad life events (DeRubeis & Hollon, 1995; Forsterling, 1990; Peterson & Seligman, 1984). Cognitive-behavioural treatment of depression and anxiety has produced positive changes in attributional style, which mediated depressive symptom prevention (Seligman, Schulman, DeRubeis, & Hollon, 1999).

Research aims

As is apparent from the literature discussed, personality and attributional style are both associated with psychological adaptation. Previous literature indicates the FFM or Big-Five personality traits might aid identification of individuals at risk of poor psychological adaptation. With regards to subsequent intervention, the potential to directly modify personality

dimensions has not been established. Attributional style (hypothesised to be a vulnerability factor for a range of adverse outcomes) is proposed as a possible point of intervention, supported by associations with the range of adverse outcomes previously considered in relation to TCPs. In addition, as attributional style is conceived of as a personality trait associated with dimensions of the Big-Five it would be useful to explore the unique variance accounted for by the two predictors.

The three variables discussed are multi-faceted in their composition which presents challenges for statistical analysis. Previous studies of psychological adaptation in TCPs have utilised a series of multiple regression or path analysis models (Brooks et al., 2002; Kuyken et al., 2003). The current study uses Structural Equation Modelling (SEM) to provide a more parsimonious approach to the analysis.

SEM allows tests of associations between latent variables (or factors) comprised of a number of indicators. For the purposes of the current study, personality, attribution style and psychological adaptation are conceptualised as latent variables. The first step of SEM is Confirmatory Factor Analysis (CFA) of each latent variable and set of indicators (known as measurement models). This provides validation of the measures and constructs used, ensuring that relationships between latent variables (specified in the structural equation model) are less contaminated by measurement error. A series of structural equation models will then be constructed in which the big five dimensions of personality, pessimistic attributional style and finally the two covarying act as predictors of psychological adaptation (see Figure 1 for a diagrammatic representation of this final model). Precisely how these latent variables are measured will be subject to validation of the measurement

models. In addition to the use of latent variables, advantages of SEM over techniques such as multiple regression include allowance for covarying predictor variables, the simultaneous modelling of complex sets of relationships and the subsequent provision of overall tests of model fit in addition to individual parameter estimates (Arbuckle & Wothke, 1999; Garson, 2006).

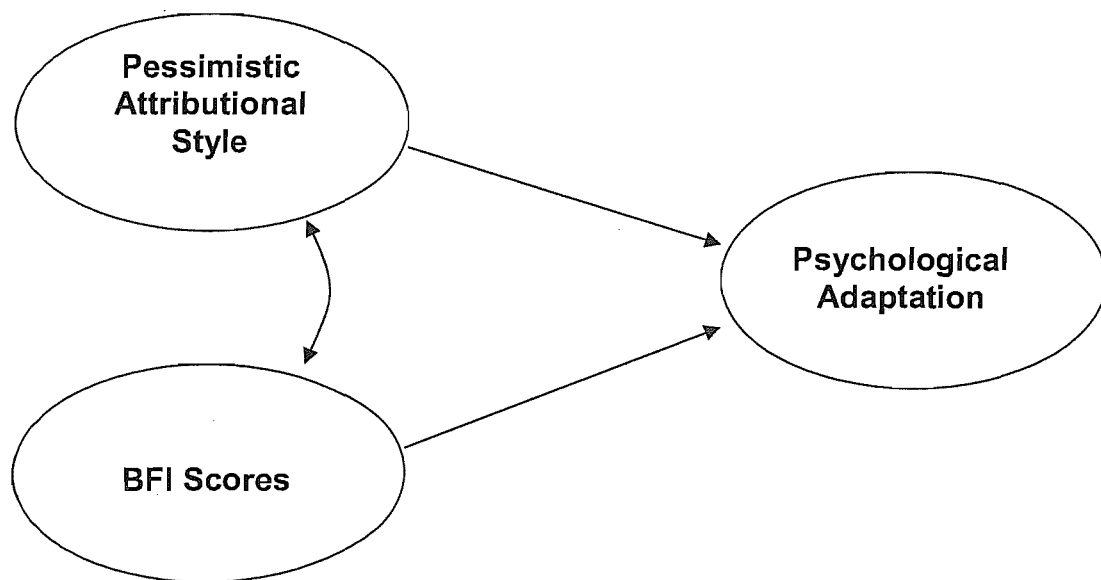


Figure 1. Diagrammatic representation of the broad theoretical links to be tested by SEM in the current study. BFI= Big Five Inventory.

In order to minimise the costs of the study and maximise the potential sample size the study was conducted online using Psychosurvey, an online survey programme developed by the School of Psychology at the University of Southampton (see Appendix C for discussion of a pilot study to demonstrate the equivalence of the online measures used).

Method

Design

The current study was a cross-sectional single cohort study. Questionnaires were administered via an online survey format.

Participants

TCPs from all 3 years of 20 UK doctoral training courses were invited to participate in the study. Two-hundred and eighty-five people accessed the online survey between December 2006 and February 2007. For the 2006 entry cohort, places on the participating courses totalled 416. When multiplied for the three years this suggests a total sample of approximately 1248 trainees. It is difficult to establish what response rate was achieved for the current study as it relied on third parties to forward requests for participants. However, using these figures as a guide the overall response rate was approximately 22%. The demographic profile of the current sample broadly reflects that of the cohort of individuals who accepted a place on a training course in 2006 (Clearing House, 2006) in terms of age and gender. White participants were slightly overrepresented in comparison to the Clearing House data. The demographic profiles of the participants in the current study and the 2006 cohort nationally, as produced by the Clearing House, are displayed in Table 1.

Table 1.

Demographic profile of the 285 responders to the current survey, compared with Clearing House (2006) data

Demographic details	N	Current study		Clearing House data
		Percentage of overall sample	Percentage of completed responses	Percentage of 2006 entry cohort
Gender				
Male	36	12.6	14.3	14
Female	215	75.4	85.7	86
Data missing	34	11.6		
Age				
20-29	179	63	74.0	82
30-39	56	19.7	23.1	16
40-49	6	2.1	2.5	2
50+	1	0.4	0.4	1
Data missing	42	14.8		
Year of study				
1 st year	87	30.5	35.5	N/A
2 nd year	72	25.3	29.4	
3 rd year	86	30.2	35.1	
Data missing	40	14		
Ethnicity				
White	241	84.9	94.9	91
Asian, Black & other	13	4.6	5.1	9
Data missing	30	10.6		

Further exploration of the data indicated that 96 participants (34%) began but did not complete the survey. Details about how incomplete data were treated can be found below in the data analysis section and comment on non-completion rates in the discussion. Chi-square tests indicated that there were no significant differences in gender and year of study between completers and non-completers. The Fisher's exact test was computed for ethnic background as the cell count was below 5. No significant differences were found between completers and non-completers. The Kolomogorov-Smirnov (KS) statistic indicated that data relating to the age of participants violated assumptions of normal distribution ($p < 0.01$). A non-parametric (Mann-Whitney) t-test was therefore conducted and was non-significant, $U = 4888$, $N_1 = 181$, $N_2 = 59$, $p = .326$, indicating there were no differences in age between the two groups.

Measures

*The Employee Assistance Program Inventory (EAPI; Anton & Reed, 1994).*²

The EAPI is a 120-item self-report measure comprised of 10 subscales which profile psychological adaptation in working age adults. It is an American measure designed as a screening tool to aid Employee Assistance Programs (EAPs) in identifying common psychological problems. Previous research involving TCPs has consistently identified problems in relation to the subscales measuring anxiety, depression, self-esteem and work-adjustment (Kuyken et al., 1998; Kuyken et al., 2000). Consistent with more recent research (Kuyken et al., 2003; Millican, 2004), psychological adaptation is

² Copyright for the EAPI is owned by Psychological Assessment Resources. Licences for online usage of the scale were purchased from PAR. (Appendix C)

measured in the current study using these four subscales. Participants were therefore required to rate the accuracy of 48 statements (e.g. I am a calm person, I feel sad or blue most of the time) about themselves on a 4-point (false to very true) Likert scale. For each subscale higher scores are indicative of increased problems in this area. For description of the relevant subscales see Appendix E.

Normative data for the EAPI was gathered from a sample of 1,266 employed adults ranging from 18-76 years of age. Anton and Reed (1994) provide guidelines for comparing an individual's score to the standardisation sample by converting raw scores to *T* scores (mean of 50 and a standard deviation of 10). *T* scores of 59 and below are considered to be within normal limits, scores of 60-69 suggest difficulty and fall within the borderline clinical range, scores of above 70 indicate significant difficulties.

Anton and Reed (1994) demonstrated adequate internal consistency of the subscales of the EAPI with Cronbach alphas for the four subscales in question ranging from 0.81 to 0.91. The Cronbach alphas for the current study were 0.83 (depression; $M = 16.54$, $SD = 3.87$), 0.89 (anxiety; $M = 19.16$, $SD = 5.75$), 0.80 (self-esteem; $M = 22.93$, $SD = 5.22$) and 0.74 (work adjustment; $M = 18.05$, $SD = 3.80$), thus indicating adequate internal consistency.

*The Big Five Inventory (BFI; John, Donahue & Kentle, 1991).*³

The BFI was used to measure the dimensions of personality commonly known as the 'Big Five'. The BFI is a self-report measure comprised of five subscales labelled Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Participants were required to rate their agreement with the statement "I am someone who. . ." in relation to 44

³ Permission to use the BFI was provided by the first author (Appendix F).

characteristics (e.g. is talkative, tends to be lazy). The BFI uses a 1 (disagree strongly) to 5 (agree strongly) Likert scale. Greater endorsement of items contributes to a higher score on the relevant subscale.

In US and Canadian samples alpha reliabilities for the BFI subscales typically range from 0.75-0.90 and average above 0.80 (Benet-Martinez & John, 1998; John & Srivastava, 1999). The Cronbach alphas for the current study were 0.83 (openness; $M = 36.87$, $SD = 6.47$), 0.82 (conscientiousness; $M = 34.07$, $SD = 5.80$), 0.86 (extraversion; $M = 27.06$, $SD = 6.34$), 0.76 (agreeableness; $M = 35.26$, $SD = 5.13$), and 0.84 (neuroticism; $M = 22.38$, $SD = 6.20$), thus indicating adequate internal consistency for all subscales.

*The Expanded Attributional Style Questionnaire (EASQ; Peterson & Villanova, 1988).*⁴

The EASQ was used to measure attributional style. The EASQ is a self-report measure in which participants are presented with 24 negative scenarios (e.g. you have been looking for a job unsuccessfully for some time, your steady romantic relationship ends), and are then asked to imagine and record the cause of each event. Seven-point Likert scales are used to rate the cause in terms of externality versus internality (1, totally due to others, to 7, totally due to me); instability versus stability (1, never present, to 7, always present); and specificity versus globality (1, just this situation, to 7, all situations). A composite score is formed by summing the internality, globality and stability ratings. Higher composite scores indicate more pessimistic attributional styles.

Peterson and Villanova (1988) reported Cronbach alphas of between 0.66 and 0.88 for the individual dimensions of the EASQ. The Cronbach alphas for the current study were 0.70 (internality; $M = 102.34$, $SD = 12.18$),

⁴ The EASQ and permission to use it were provided by the first author (Appendix G)

0.86 (stability; $M = 103.55$, $SD = 14.56$), 0.89 (globality; $M = 89.78$, $SD = 21.57$), and 0.90 (composite; $M = 295.67$, $SD = 38.57$). Adequate internal consistency was indicated for all subscales and the composite score.

Procedure

Ethical approval for the study was granted from the Southampton University School of Psychology Ethics Committee (Appendix H).

Course directors were contacted (see Appendix I) to request permission to contact trainees (see Appendix J for reply form). After follow-up telephone calls were made, permission was obtained to contact trainees on 20 training courses. Reasons given for not granting permission included the involvement of trainees on other research projects, and concerns about trainees feeling obliged to participate.

Trainees on participating courses received an e-mail with information about the study and a link to the relevant webpage (Appendix K). E-mails were forwarded to trainees via a nominated member of staff from the course. Having followed the weblink participants were presented with an information page (Appendix L), containing information about the study and a request to indicate consent by selecting a box. The information page also included details of how to withdraw from the study. All participants completed the demographics section first. The subsequent presentation of questionnaires was counterbalanced across participants in order to balance any order effects. At the end of the survey participants were presented with a debriefing statement (Appendix M). In order to maximise the response rate a follow-up e-mail was sent approximately 1 month after the initial e-mail (Appendix N). The study was active for approximately 2 ½ months in total.

Data analysis

As indicated in the method section, 96 participants did not complete the survey. Due to the high percentage of missing data it was decided that these participants be excluded from the study. One-hundred and eighty-nine sets of data were therefore retained for the final analysis. Where these participants failed to respond to particular items data was coded as missing in SPSS. Following recommendations made by Tabachnik and Fidell (1996) missing data was replaced with the mean for the particular item.

Results

Data screening procedures

The data was checked for violations of the assumptions of parametric data. Histograms, KS statistic and skewness values were examined to look at the distribution of data. These indicated that the subscales of the EAPI were not normally distributed and were therefore violating parametric assumptions. Consistent with recommendations made by Field (2005) and Tabachnik and Fidell (1996), data transformations were conducted on the relevant subscales. Following transformation improvements in normality were observed and skewness values fell within acceptable limits.

Descriptive statistics

Table 2 shows the mean scores and standard deviations for the personality (BFI), attribution style (EASQ) and psychological adjustment (EAPI) subscales⁵. For the BFI and EASQ these scores represent raw scores. On the EAPI raw scores are converted to *T* scores (scores with a mean of 50 and standard deviation of 10). The EAPI scores appearing in Table 2 are therefore transformed scores. A score of above 60 is suggestive of difficulty in the borderline-significant range. The percentage of trainees scoring above this cut-off is included in Table 2.

For the EAPI subscales the mean *T*-scores fell below the cut-off score of 60 indicating that overall the trainees were a well-adjusted group. However

⁵ A two (gender) by three (year of study) ANOVA was conducted to look for differences in personality, attribution and psychological adaptation. The only significant effects found were of gender on personality (males scored higher on extraversion, and females scored higher on agreeableness) and self-esteem (females had higher scores, indicative of greater problems) ($ps < 0.05$). Given the small sample size and the high percentage of female participants the groups were combined for the remaining analyses. Year of study had no significant effect on any of the variables.

a subgroup of trainees scored over the cut-off on each subscale suggesting they may be experiencing borderline-significant levels of difficulty. Thirty-four percent of the sample experienced problems in one or more areas of psychological adaptation.

Table 2

Descriptive information for the BFI, EASQ, and EAPI.

	Mean	Standard deviation	% of trainees scoring >60
Psychological adaptation (EAPI)			
Anxiety	51.05	9.94	16
Depression	49.89	7.72	10
Self-esteem	54.82	10.46	23
Work Adjustment	46.23	6.8	4
Personality (BFI)			
Openness	36.87	6.47	-
Conscientiousness	34.07	5.80	-
Extraversion	27.06	6.34	-
Agreeableness	35.26	5.13	-
Neuroticism	22.38	6.20	-
Attribution style (EASQ)			
Internality	102.34	12.18	-
Globality	89.78	21.57	-
Stability	103.55	14.56	-
Composite	295.67	38.57	-

Initial correlations

Table 3 shows the correlations between the subscales of personality (BFI), attributional style (EASQ) and psychological adaptation (EAPI). With regards to personality and psychological adaptation, neuroticism was positively correlated with all four dimensions of psychological adaptation ($p < 0.01$). High neuroticism scores are thus associated with problems of anxiety, self-esteem, depression and work adjustment (it is worth emphasising that high scores on the self-esteem and work adjustments subscales are indicative of problems rather than high self-esteem or good work adjustment). Extraversion and agreeableness were significantly negatively correlated with all dimensions of psychological adaptation at either $p < 0.05$ or $p < 0.01$. The remaining personality subscales did not show such consistent relationships with psychological adaptation. Openness was significantly negatively correlated with self-esteem problems ($p < 0.01$), as was conscientiousness with depression ($p < 0.01$). Given that neuroticism was the only personality dimension positively correlated with problems of psychological adaptation this provided a potential confound to interpretation if latent variables were to be constructed. Consistent with previous research (DeYoung, 2006; DeYoung et al., 2002, 2007; Digman, 1997; R.W. Robins et al, 2001; Trull & Sher, 1994) neuroticism was reverse scored for the SEM component of the analysis. Neuroticism-reversed reflects an absence of neuroticism, or presence of 'emotional stability' as it is labelled in some studies.

The EASQ composite score was significantly positively correlated with all four dimensions of psychological adaptation ($p < 0.01$). The EASQ composite score was also significantly negatively correlated with the personality dimensions of agreeableness, conscientiousness and openness

($p < 0.01$), and positively correlated with neuroticism ($p < 0.01$). There was no significant relationship between the EASQ composite score and extraversion.

Correlations provide an initial indication of the likelihood of several indicator variables loading onto a latent variable. There were strong correlations between the factors of the proposed latent variables. With the exception of Work adjustment correlations between the various dimensions of psychological adaptation were all above .6 ($p < 0.01$). Work adjustment was significantly positively correlated with the other dimensions although to a lesser degree. Of the personality dimensions, neuroticism was significantly negatively correlated with extraversion, agreeableness ($p < 0.01$), and openness ($p < 0.05$). Agreeableness was also positively correlated with conscientiousness ($p < 0.01$), and extraversion with openness ($p < 0.01$). With regards to attributional style, internality, stability and globality were positively correlated with each other ($p < 0.01$) and the attributional style composite score ($p < 0.01$). These correlations suggested that the construction of latent variables should be further explored.

Table 3

Correlations between personality, attributional style, and psychological adaptation.

	1	2	3	4	5	6	7	8	9	10	11	12	13
	Ex	Ag	Co	Ne	Op	In	St	Gl	Comp	SE	Dep	An	WA
Personality (BFI)													
1. Extraversion	1												
2. Agreeableness	.09	1											
3. Conscientiousness	.12	.24**	1										
4. Neuroticism	-.35**	-.28**	-.14	1									
5. Openness	.23**	.06	.00	-.16*	1								
Attributional Style (EASQ)													
6. Internality	-.15*	-.15*	-.16*	.31**	.20**	1							
7. Stability	-.10	-.18*	-.24**	.30**	.18*	.31**	1						
8. Globality	-.05	-.23**	-.17*	.37**	-.10	.27**	.66**	1					
9. Composite	-.12	-.24**	-.24**	.42**	-.19**	.58**	.84**	.89**	1				
Psychological adaptation (EAPI)													
10. Self-esteem	-.54**	-.25**	-.14	.69**	-.28**	.35**	.39**	.36**	.46**	1			
11. Depression	-.38**	-.17*	-.24**	.57**	-.05	.37**	.34**	.37**	.45**	.60**	1		
12. Anxiety	-.20**	-.18*	-.08	.78**	-.07	.30**	.33**	.40**	.44**	.61**	.68**	1	
13. Work adjustment	-.16*	-.24**	-.12	.29**	-.11	.07	.25**	.21**	.24**	.32**	.44**	.35**	1

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

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

Validating the measurement models

SEM was conducted using AMOS version 7. The first step of the structural equation modeling process involves validating the measurement models (individual latent variables and their indicators) that are going to be incorporated into the structural model. Confirmatory Factor Analysis (CFA) was used to specify and test measurement models for which existing research indicated a statistical and theoretical basis. Models were estimated using the maximum likelihood procedure. Hoyle and Panter (1995) acknowledge the large amount of output generated by SEM programmes and the lack of consensus about which indices of fit to report when evaluating structural equation models. Hu and Bentler (1995) divide the fit indices into two categories, absolute fit indices (measuring the degree to which covariances implied by the fixed and free parameters in the model match the observed covariances) and incremental/ comparative fit indices (comparing the model with a null model which specifies no covariances among variables). The consensus is that a selection of the two should be reported. The statistics reported below are consistent with the recommendations of Hoyle and Panter (1995), and Hu and Bentler (1995, 1999).

In terms of absolute fit indices, a non significant chi-square ($p > 0.05$) statistic supports the notion that the model fits the data, a finding of significance indicates that the given model's covariance structure is significantly different from the observed covariance matrix. However, there are a number of conditions which impact on the reliability of χ^2 and it is therefore common practice to consider other absolute fit indices before accepting or rejecting a model. Hu and Bentler (1995) report that the Root Mean Square

Error of Approximation (RMSEA) should be close to or below .06, and the Standardised Root Mean Square Residual (SRMR) should be close to or below .08. The RMSEA is a calculation of the dispersal of noncentrality across degrees of freedom and sample size (average lack of fit per degree of freedom, Hancock & Freeman, 2001). The SRMR is the average difference between the predicted and observed variances and covariances in the model, based on standardised residuals (Garson, 2006).

In relation to comparative fit indices various rules of thumb exist. Hoyle and Panter (1995) suggest that .90 is the reasonable minimum for model acceptance. Hu and Bentler (1999) recommend that the Tucker and Lewis Index (TLI), and the Comparative Fit Index (CFI) should be close to .95 or higher before concluding that there is a good fit between the hypothesised model and the observed data. The TLI reflects the proportion by which the hypothesised model improves fit compared to the null model while penalizing for model complexity (Garson, 2006). The CFI compares the existing model fit with a null model which assumes the latent variables in the model are uncorrelated (Garson, 2006).

Methods for comparing two models depend on the modifications that have been made. A chi-square difference statistic can be computed for nested models (where it is possible to go from one model to another by adding or freeing constraints). However this is not appropriate for models such as those below which don't have the same variables (Garson, 2006). Hoyle and Panter (1995) recommend that in this instance it is acceptable to compare absolute fit indices.

Measurement model for Psychological Adaptation

The first model grouped the four EAPI dimensions as observed variables and indicators of the latent variable 'psychological adaptation'. The chi-square (X^2) statistic was non-significant, $X^2(2, N=189) = 2.88, ns$, supporting the notion that the model fits the data. This was further supported by the RMSEA of .04 and SRMR of .02. The model also compared extremely favourably to the null model as indexed by the CFI of 1.00, and the TLI of .99. Overall the results suggested that this four-factor structure of psychological adaptation provided a very good fit for the data and it was therefore accepted. Factor loadings for depression, anxiety, self-esteem and work adjustment were .84, .81, .73, and .48, respectively. All loadings were significant ($p < 0.001$).

Measurement model for personality

Consistent with the five-factor structure supported by previous research (e.g. Benet-Martinez and John, 1998) the five dimensions were initially conceptualised as individual indicators of a latent construct labeled personality. The overall fit information can be summarised as follows: $X^2(5, N=189) = 12.20, p < 0.05$, RMSEA = .09, SRMR = .06, CFI = .87, TLI = .74). A second model was also tested in line with research indicating a higher-order factor solution (e.g. DeYoung, 2006). Neuroticism (reversed), agreeableness and conscientiousness were arranged as observed variables contributing to the latent variable "stability", and extraversion and openness as indicators of a second latent variable, "plasticity". This second model demonstrated a better fit with the data as indicated by the following fit information: $X^2(4, N=189) = 8.45, p > 0.05$, RMSEA = .07, SRMR = .04, CFI = .92, TLI = .80. Although the TLI

was below the cut-off recommended by Bentler and Hu (1995), Hoyle and Panter (1995) note that the TLI does not perform so well in smaller sample sizes as it tends to overreject true-population models. The second model with the higher order latent variables of stability and plasticity was therefore accepted. Factor loadings for neuroticism (reversed), agreeableness and conscientiousness onto stability were .76, .36 and .23, respectively ($p < 0.05$). Factor loadings for extraversion and openness onto plasticity were .71, and .32, respectively ($p < 0.05$). The correlation between plasticity and stability was .62 ($p < 0.001$).

Measurement model for attributional style

Until recently there was limited data available to determine whether or not the three factor structure of attributional style was supported statistically. However, Hewitt, Foxcroft, and MacDonald (2004) conducted CFA on the Attributional Style Questionnaire (ASQ), of which the EASQ is an extended version. This supported the three-factor structure when error terms were correlated to reflect the structure of the questionnaire, in which internality, globality and stability ratings are made in relation to each statement. When correlations were estimated between the error terms corresponding to each hypothetical statement the model provided a good fit to the data. A similar model was therefore specified for the EASQ. Globality, stability and internality were conceptualised as latent variables each with 3 indicators comprised of the relevant items divided into three sections (totaling 9 indicators overall). These latent variables in turn contributed to the higher order latent variable of attribution style. The fit information indicated that this provided an extremely good fit to the data and the model was therefore accepted, $\chi^2(15, N=189) =$

10.65, $p > 0.05$, RMSEA = .00, SRMR = .03, CFI = 1.00, TLI = 1.02. Factor loadings for the latent variables of stability, globality and internality onto the higher order latent variable of attribution style were .97, .72, and .39 respectively ($p < 0.001$). Loadings for the observed variables onto the lower order latent variables ranged from .57 to .86 ($p < 0.001$).

Structural Equation Models

Personality and psychological adaptation

The first set of structural models tested whether personality (the two latent variables of plasticity and stability), predicted psychological adaptation (see Figure 2). The fit information suggested this model did not provide an acceptable fit for the data. Goodness of fit indices: $\chi^2(24, N=189) = 126.98$, $p < 0.001$, RMSEA = .15, SRMR = .07, TLI = .74, CFI = .83. Stability was a significant predictor of psychological adaptation ($\beta = -.88$, $p < 0.001$). However, as plasticity was not a significant predictor of psychological adaptation ($\beta = -.12$, $p > 0.05$), a second model was therefore specified in which only the latent personality variable of stability was included as a predictor (see Figure 3). Stability remained a significant predictor of psychological adaptation ($\beta = -.92$, $p < 0.001$). The overall model fit was slightly better than for the original model as indicated by the decrease in RMSEA and SRMR. Goodness of fit indices: $\chi^2(13, N=189) = 63.12$, $p < 0.001$, RMSEA = .14, SRMR = .06, TLI = .84, CFI = .90.

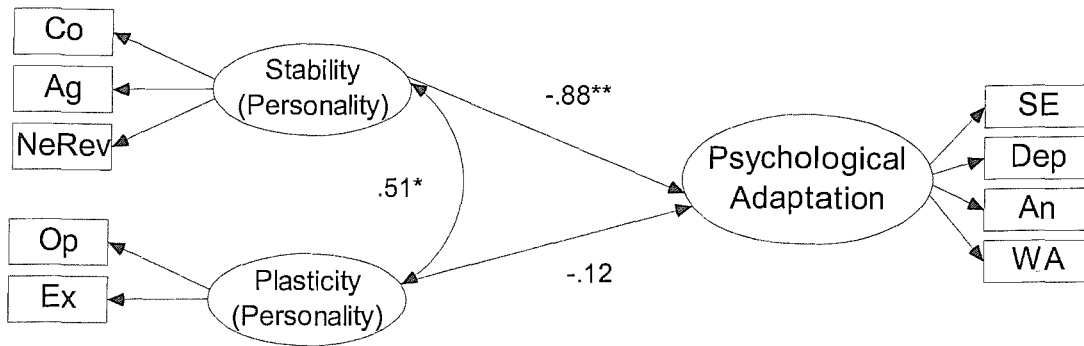


Figure 2. Structural model of the associations between the higher-order factors of the Big Five and psychological adaptation. ** $p < 0.001$, * $p < 0.05$. Co= Conscientiousness; Ag= Agreeableness; NeRev= Neuroticism Reversed; Op= Openness; Ex= Extraversion; SE= Self-Esteem; Dep= Depression; An= Anxiety; WA= Work Adjustment.

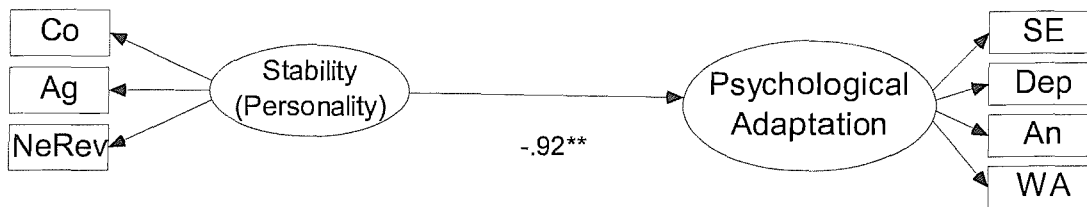


Figure 3. Structural model of the association between the higher-order Big Five factor stability, and psychological adaptation. ** $p < 0.001$. Co= Conscientiousness; Ag= Agreeableness; NeRev= Neuroticism Reversed; SE= Self-Esteem; Dep= Depression; An= Anxiety; WA= Work Adjustment.

Attributional style and psychological adaptation

In order to test the predictive value of attribution style in relation to psychological adaptation an additional model was specified (see Figure 4). This model provided an extremely good fit with the data. Goodness of fit indices $\chi^2(52, N=189) = 61.09$, *ns*, RMSEA= .03, SRMR= .05, TLI= .99, CFI=

.99. Attributional style was a significant predictor of psychological adaptation ($\beta = .65, p < 0.001$).

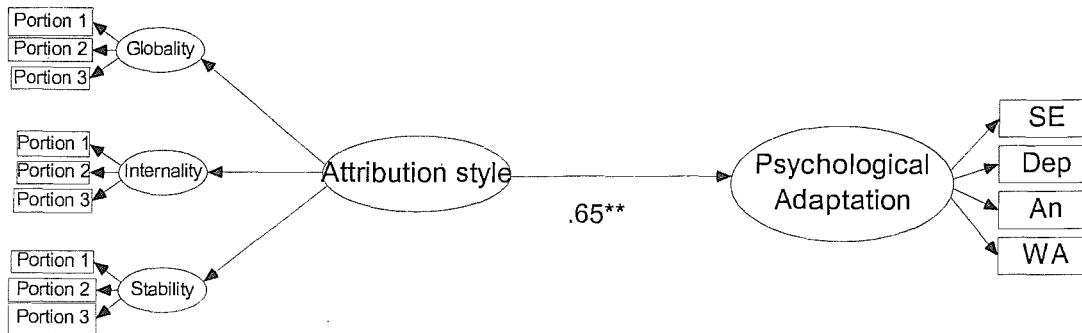


Figure 4. Structural model of the association between attributional style and psychological adaptation. ** $p < 0.001$. SE= Self-Esteem; Dep= Depression; An= Anxiety; WA= Work Adjustment.

Personality, attributional style and psychological adaptation

From the models described so far it appeared that both personality stability and attribution style were predictors of psychological adaptation. An extension of this was to examine the unique contribution of both variables in predicting psychological adaptation. Given the association between personality and attribution style identified in the introduction, and the correlations reported earlier, a further model was specified in which both were included as covarying latent variables predicting psychological adaptation (see Figure 5). The results indicated the model was a good fit. Goodness of fit indices $\chi^2(89, N=189) = 151.49, p < 0.001$, RMSEA= .06, SRMR= .07, TLI= .93, CFI= .95. Furthermore, stability (personality) was a significant predictor of psychological adaptation ($\beta = -.83, p < 0.001$). Stability (personality) and attributional style were negatively associated ($p < 0.001$). Attribution style was

not a significant predictor of psychological adaptation ($\beta = .20$, $p > .05$), although at $p = .10$ this might be considered of marginal significance.

The model fit was better for the combined model than for stability (personality) as an individual predictor as indicated by the considerably smaller RMSEA and SRMR values. In addition, the R^2 value for psychological adaptation in the final model was .90 (compared to .84 in the model where stability was the sole predictor), indicating that the final model accounted for 90% of the variance in psychological adaptation. Although only a marginally significant predictor of psychological adaptation attributional style explains some unique variance in psychological adaptation. It is possible that attributional style only explains a small portion of the unique variance in psychological adaptation because of the small sample size (i.e., the study suffers from low power). It is possible that a larger sample size would identify a significant unique effect of attribution style on psychological adaptation and this issue is revisited in the discussion. When attribution was considered the sole predictor of psychological adaptation (Figure 4) the RMSEA and SRMR were lower than for the other models, however, this is likely to reflect the extremely good fit of the attribution style measurement model as attribution was not such a good predictor of psychological adaptation and the R^2 value was .43. The final model (Figure 5), demonstrated an adequate fit according to the fit statistics and explained the greatest amount of variance, both attribution style and stability (personality) are therefore retained as predictors. The applications of these findings will be discussed in the following section.

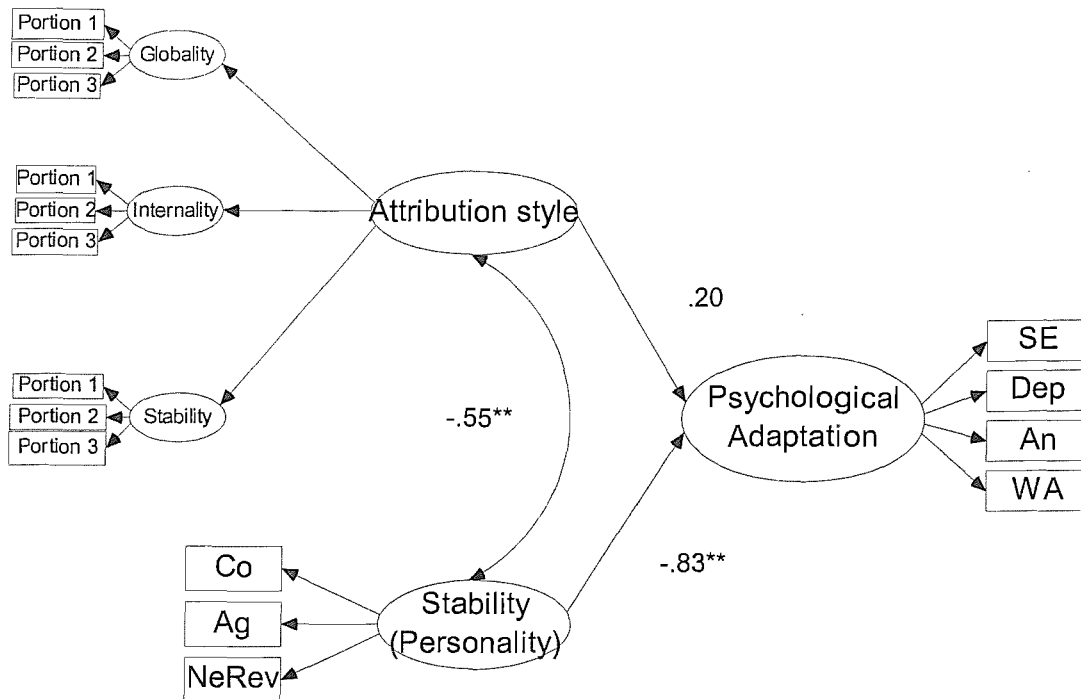


Figure 5. Structural model of the associations between stability (personality), attribution style and psychological adaptation. $** p < 0.001$. Co= Conscientiousness; Ag= Agreeableness; NeRev= Neuroticism Reversed; SE= Self-Esteem; Dep= Depression; An= Anxiety; WA= Work Adjustment.

Discussion

Personality, attributional style, and psychological adaptation

Consistent with previous findings, a subgroup of the current sample of TCPs reported problems in one or more areas of psychological adaptation. Almost one-quarter of the sample (23%) scored above the cut-off for self-esteem problems, an identical figure to that obtained by Brooks et al. (2002) in the most recent study of TCPs. The percentages of trainees scoring in the problem range for other areas of difficulty were slightly lower than in the Brooks et al. study but showed the same order of frequency, 16% versus 18% for anxiety; 10% versus 14% for depression; and 4% versus 8% for work adjustment. Thirty-four percent of the current sample experienced one or more problems.

In relation to the current data set, the goodness of fit indices suggested that neither the five-factor or higher-order models of personality provided an optimum fit. However, at the current time these are the models for which a theoretical basis is available, and testing of which was therefore justified. Comparison of the five-factor and higher-order models of personality indicated that the latter provided a better fit (supported by a non-significant chi-square statistic for the latter model). Identification of a higher-order model (characterised by two latent variables labeled stability and plasticity) is consistent with recent conceptualisations of the FFM which challenge the orthogonal conceptualisation of the big-five personality dimensions (DeYoung, 2006; DeYoung, et al., 2007; DeYoung et al., 2005). Stability (comprised of conscientiousness, agreeableness and emotional stability/ neuroticism

reversed) was a significant predictor of psychological adaptation. According to DeYoung et al. (2002), the shared variance of the dimensions comprising emotional stability appears to reflect stability in emotional (neuroticism), social (agreeableness) and motivational (conscientiousness) domains. This conceptualisation is consistent with the current finding that increased stability was predictive of fewer problems in psychological adaptation. Previous research regarding the links between the personality dimensions and the various facets of psychological adaptation has tended to identify individual dimensions or profiles across the five factors rather than group them according to the arrangement used in the current study. However, in so far as higher or lower scores on the dimensions of neuroticism, agreeableness and conscientiousness have been linked with the various facets of psychological adaptation, the current findings are consistent with those of Trull and Sher (1994) with regards to anxiety and depression; R.W. Robins et al. (2001) with regards to self-esteem; and Grant and Langan-Fox (2006) with regards to work adjustment. Stability accounted for 84% of the variance in psychological adaptation, a considerably higher proportion than in the Brooks et al. (2002) study where personality adjustment (conceptualised and measured according to Millon's biosocial-learning theory of personality) accounted for no more than 40% of the variance in any one of anxiety, depression or work adjustment. This suggests that the FFM has significant utility in predicting problems of psychological adaptation in TCPs.

Plasticity (comprised of openness and extraversion) was not a significant predictor of psychological adaptation. DeYoung et al. (2002) suggested that plasticity reflects a tendency to explore, or engage voluntarily,

with novelty in the behavioural (extraversion) and cognitive (openness) domains. With regards to extraversion, previous research suggests negative associations with anxiety and depression (Trull & Sher, 1994), self-esteem (R.W. Robins et al., 2001), and problems of work adjustment (Grant & Langan-Fox, 2006). The correlations between extraversion and the facets of psychological adaptation in the current study are consistent with these findings. However, as indicated by discrepancies in previous research (Costa & McCrae, 1992b), openness was less consistently associated with psychological adaptation. This may have contributed to the finding that stability was not a significant predictor of psychological adaptation in the current study.

When considered independently of personality, attributional style emerged as a significant predictor of psychological adaptation. This finding is of relevance for the issue of the specificity of pessimistic attributional style to depression. Both the learned helplessness model (Abramson et al., 1978) and the hopelessness model of depression (Abramson et al., 1989) assert that pessimistic attributional style is a cognitive vulnerability factor for symptoms of depression. In addition, to the extent that attributions are also internal, it is hypothesised that self-esteem will be lower. The more general association between attributional style and negative affect has stimulated interest in the relevance of attributional style to anxiety. However, findings to date have been inconsistent: some studies have found an association (Ahrens & Haaga, 1993; Luten et al., 1997), whereas others have failed to do so (Metalsky & Joiner, 1992; Mongrain & Blackburn, 2005). The current finding that pessimistic attributional style was significantly positively correlated with all

problems of psychological adaptation, and a significant predictor of the latent variable of psychological adaptation suggests that pessimistic attributional style might not be specific to depression and, instead that it is a cognitive style construct of interest when thinking about vulnerability to problems of psychological adaptation in TCPs.

Attributional style is conceived of as a personality variable (Peterson, 1991) and has been previously associated with the big-five personality dimensions of extraversion and neuroticism (Mitchell, 1989; Poropat, 2002). Mongrain and Blackburn (2005) reported that when neuroticism was controlled for, attributional style remained a predictor of previous episodes of depression. In the current study, when stability (personality) and attributional style were entered as covarying predictors of psychological adaptation, only stability (personality) was a significant predictor, although the contribution of attributional style might be considered marginally significant. However, when the model fit statistics and the amount of explained variance in psychological adaptation were considered, this final model offered the best solution. Indeed, the final model explained 90% of the variance in psychological adaptation, which suggests that individuals who are low in stability (personality), and who have a pessimistic attributional style might be at increased risk of poor psychological adaptation.

Applications of current findings

The current study indicates that personality stability accounts for a significant proportion of the variance in psychological adaptation. It would be easy to draw the conclusion that personality testing could help selection

procedures by screening out those at risk of problems of psychological adaptation. However, this conclusion is premature on a number of counts. Firstly, although individuals characterised by high stability (absence of neuroticism, high conscientiousness and agreeableness) appear to be at reduced risk, a cut-off would need to be established which resulted in minimum likelihood of false positives and negatives. Secondly, when stability is considered as the sole predictor of psychological adaptation, 16% of the variance remains unaccounted for. This suggests that factors other than personality are implicated in the development of problems of psychological adaptation, and indicates that screening on the basis of personality alone is likely to result in inaccurate predictions about an individual's level of risk. Thirdly, it would be ethically questionable as it would discriminate against some individuals on the grounds that they might experience adjustment problems.

In addition to the above arguments there is as yet no clear argument for excluding individuals with problems of psychological adaptation from clinical psychology training. The finding that depression is linked with dropout and academic performance in medical students (D. C. Clark & Zeldow, 1998; Stewart et al., 1995) has yet to be replicated in TCP samples. Kuyken et al. (2003) reported that self-esteem problems, anxiety and depression were predictors of approaches to learning that were associated with poor academic outcomes, although such an association requires verification in the current population. Despite the concern raised by the RCP (2003) with regards to the impact of student health professionals' distress on client care, the picture is also unclear here. Although a number of discussions of therapist impairment

conclude that the personal problems of therapists have a negative impact on therapeutic effectiveness (e.g. Sherman, 1996; Sherman & Thelen, 1998), these conclusions tend to be based on limited and outdated research, with samples generally comprised of qualified therapists from a range of backgrounds other than clinical psychology. Indeed, the opposite may be true and personal experience of distress may facilitate the therapeutic relationship (May, 2000).

A more helpful and more ethical application of personality screening could be to "help individuals to be aware of their own personality strengths and weaknesses, and to have careers which develop those strengths and avoid the weaknesses. Physician, know thyself!" (McManus, 2005, p751). Costa and McCrae (1992b) report a number of ways in which an understanding of one's personality profile might be helpful; these include developing an understanding of whether a problem is a reaction to a specific event, or a reflection of an underlying personality structure; providing some indication of interventions that are likely to be useful; and facilitating insight into patterns of response and behaviour.

The findings from the current research indicate that in terms of screening for risk of psychological problems measures of the FFM of personality are likely to be better predictors than attributional style. While this may enable individuals to anticipate difficulties and develop coping strategies, L. A. Clark et al. (1994) question whether personality traits themselves can be the focus of intervention. Attributional style has been previously identified as a cognitive style that is subject to change in response to therapeutic intervention (DeRubeis & Hollon, 1995; Forsterling, 1990; Peterson & Seligman, 1984;

Seligman, Schulman, DeRubeis, & Hollon, 1999). Although attributional style was not a significant predictor of psychological adaptation when personality was controlled for, it was significant as a sole predictor. In current clinical practice cognitive constructs, such as attributional style could potentially be of greater clinical interest than personality because they are amenable to change through intervention. As with personality, enabling an individual to develop an awareness of a tendency to explain events in a particular (maladaptive) way might help them to anticipate problems and develop strategies for managing them.

There are a number of ways in which courses could help trainees to engage in self-monitoring and support them in accessing appropriate resources where required. Supervision (whether research, clinical, or academic) is one opportunity. A recent literature review of supervision in clinical settings identifies the key purposes of supervision as providing “monitoring, guidance and feedback on matters of personal, professional and educational development”, (Kilminster & Jolly, 2000, p828). This should include the ability to anticipate strengths and weaknesses relevant to particular situations. Discussion of the issues and experiences that a subgroup of trainees are known to face might also reduce the perceived stigma around clinician experiences of psychological problems (Levine, Bretkopf, Sierles, & Camp, 2003), and encourage individuals to acknowledge difficulty and access support.

It is of note that the current sample were predominantly female. Although limited differences were observed between genders (significant differences found only in relation to extraversion, agreeableness, and self-

esteem), this may limit the generalisability of findings to samples with a different gender profile or affect the applicability of screening procedures to males.

Limitations and directions for future research

The cross-sectional nature of the current design precludes any conclusions about the temporal causality of the variables involved. Within the models specified in the current study personality and attributional style were conceptualised as predictors of psychological adaptation based on theoretical predictions and previous research. However, with regards to both predictors the literature acknowledges a number of possible directions for the relationships with psychological adaptation. A longitudinal design would be required in order to confirm the direction of the associations specified in the current study.

A second area of limitation in the current study relates to the overall response rate, the high numbers of participants who did not complete the study, and the subsequent sample size. The overall response rate to the online survey was approximately 22%, a significantly lower figure than those obtained in previous surveys of the TCP population, which had response rates of between 43% and 60% (Brooks et al., 2002; Kuyken et al., 2003). However, this figure is not inconsistent with the response rates reported by other online surveys where e-mails are used to recruit participants (e.g. Sheehan & Hoy, 1999). Duffy (2002) reports that most potential respondents will complete web-based surveys within 1-2 days of receipt, or not at all. This is consistent with observations from the current study where significant numbers of people

responded almost immediately on receipt of the initial or follow-up e-mail but these figures dropped off significantly soon after. Perhaps of greater concern were the number of incomplete responses and the subsequent number of participants who had to be excluded from the study. Practical problems in the design of the online survey such as inability to save responses and come back to complete it later, and the survey length, were given as reasons for non-completion. However, completers were compared with non-completers on demographic data and no significant differences were found. In addition, the profile of psychological adaptation of the current sample appeared similar to that of Brooks et al. However, the possibility remains that there would have been qualitative differences in the responses of non-completers (and indeed those who chose not to respond at all) had they completed the survey. Issues relating to overall response rate and non-completion must be considered limitations of the study.

The final sample size might be considered an associated limitation. Sample sizes below 100-150 are generally considered too small for SEM (Garson, 2006). A number of methods are reported for calculating the sample size required for a specific model. Garson (2006) reports two which suggest that the sample size should be at least 50 more than 8 times the number of measured variables in the model, or 15 cases per measured variable. The current sample size meets the former criterion for even the most complex model tested. However, this yields 12 cases per measured variable (of which there are 16). In relation to the model in which both stability and attributional style are included as predictors it is therefore possible that the significance tests lacked statistical power and the parameter estimates were less stable.

Particularly with regards to this model, the current findings require replication in larger samples. In this instance it is possible that attributional style might gain explanatory power as a predictor when stability is controlled for.

One of the benefits of SEM is conceptual simplicity; however a potential disadvantage occurs with regards to the specificity of information gained from combining across facets of a multidimensional construct (Carver, 1989). The organisation of personality dimensions in the current study was supported by CFA and indicated that the combination of neuroticism, agreeableness and conscientiousness was a particularly important one for predicting psychological adaptation. However, it is acknowledged that this doesn't allow examination of the relationship between particular dimensions of personality and psychological adaptation (or indeed particular dimensions of psychological adaptation). Within SEM, to conceptualise each dimension as an individual latent variable would have required a significantly higher number of participants or risked reduced power with the current number. One direction for future research therefore might be to consider the personality dimensions separately. Similarly, it might be expected that attributional style would have a more powerful relationship with some facets of psychological dimension than others, for example the correlations indicated that attributional style was more weakly correlated with work adjustment than the other psychological adaptation variables.

Strengths of the current research

Previous research with TCPs has consistently identified a subgroup, who experience what has been labeled as poor 'psychological adaptation', a

generic term used to describe problems relating to self-esteem, anxiety, depression, and work adjustment. Despite the implication that these problems might comprise a multifaceted construct, previous research has considered them as individual outcome variables within a series of regression models. Through the SEM approach to data analysis (specifically the CFA component) in the current study, it was possible to confirm that these variables were legitimately conceptualised as factors loading onto the latent variable of psychological adaptation. Further support for this conceptualisation comes from the finding that in the current study 34% of the sample accounted for a cumulative percentage of 53% of scores for anxiety, depression, self-esteem and work adjustment being over the cut-off of 60. Thus, the current study provided a more parsimonious and statistically valid approach to analysis than previous studies. Similarly it was also possible to validate the multifactorial models of attributional style and personality. This was particularly important with regards to the latter where the model of higher-order factors provided a better fit with the data than the traditional model in which the dimensions are conceived of as orthogonal. The process of CFA thus reduced measurement error in the structural equation models.

Conclusions

The current study was the first to consider psychological adaptation as a latent variable despite the implication of previous methods of analysis that the same predictors might be relevant for all dimensions. Attributional style and personality were identified as possible candidates for acting as predictors. Stability (a latent personality variable) was the only significant predictor when

the two were entered together and thus presents the best opportunity for identifying high-risk individuals. However, attributional style improved the overall fit of the model and was a marginally significant predictor. Given that attributional style is more amenable to modification than personality (and was a significant predictor of psychological adaptation when considered separately personality), we should not exclude it from consideration prematurely. Attributional style, however, is only one of a number of cognitive variables that might contribute to poor psychological adaptation (albeit all are likely to be strongly influenced by personality). Therefore future research should examine other aspects of cognitive style that might also contribute to poor adaptation. Previous studies (Brooks et al., 2002; Kuyken et al., 1998, 2000, 2003), together with the current findings have indicated that self-esteem problems are the most frequently reported and therefore self-esteem might be a useful starting point. However research delineating the functional impact of the various dimensions of psychological adaptation would identify priorities for intervention. The use of supervision to provide routine monitoring of risk factors such as personality and attributional style (or other aspects of cognitive style which might be found to be important to particular facets of psychological adaptation) would be one method by which training courses could support trainees in achieving optimum levels of personal and professional adaptation, and academic achievement.

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Appendix A

Instructions for authors: Clinical Psychology Review

CLINICAL PSYCHOLOGY REVIEW

Guide for Authors

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Appendix B

Instructions for Authors: Clinical Psychology and Psychotherapy

Clinical Psychology & Psychotherapy

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A. A typical citation of an entire work consists of the author's name and the year of publication.

Example: Charlotte and Emily Bronte were polar opposites, not only in their personalities but in their sources of inspiration for writing (Taylor, 1990). Use the last name only in both first and subsequent citations, except when there is more than one author with the same last name. In that case, use the last name and the first initial.

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Example: According to Irene Taylor (1990), the personalities of Charlotte. . .

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Example: Emily Bronte "expressed increasing hostility for the world of human relationships, whether sexual or social" (Taylor, 1988, p. 11).

E. When the reference is to a work by two authors, cite both names each time the reference appears.

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Book

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Book with More than One Author

Natarajan, R., & Chaturvedi, R. (1983). *Geology of the Indian Ocean*. Hartford, CT: University of Hartford Press.

Hesen, J., Carpenter, K., Moriber, H., & Milsop, A. (1983). *Computers in the business world*. Hartford, CT: Capital Press. and so on.

The abbreviation *et al.* is not used in the reference list, regardless of the number of authors, although it can be used in the text citation of material with three to five authors (after the initial citation, when all are listed) and in all parenthetical citations of material with six or more authors.

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Journal Article from Database

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Appendix C

Description and results of a pilot study to demonstrate equivalence between pencil-and-paper and online measures.

Introduction

Over recent years a rapid increase in the number of people with access to the internet has led to a significant rise in the number of psychological research studies conducted online. Reported benefits of such surveys have included decreased experimenter demand, avoidance of data entry errors (due to automatised nature of response storage), savings of money and time, and greater self-disclosure by participants (Fouladi, McCarthy, & Moller, 2002). Potential disadvantages of online surveys include the lack of controlled environment, differences between the online and original layout of questionnaire items, impact of attitude towards computers on responses (Fouladi et al., 2002), potential technical problems and multiple completions by the same participant (Buchanan & Smith, 1999).

Authors have also warned against assuming the equivalence of computerised or online and pencil and paper versions of test material (Cronbach, 1990; Kline, 1993). Cronbach (1990) summarises the current position with regards to computerised testing, "It seems that the conventional and computer versions of a test do usually measure the same variables, but difficulty or reliability can easily change. Whether the computer version is the 'same test' must be questioned with each instrument in turn psychologically." (Cronbach, 1990, p 48).

Salgado and Moscoso (2003) argue that few studies have directly examined the equivalence of online and traditional measures as different

groups of individuals have completed the two versions. Subsequently it is argued that the failure to detect differences between the forms does not necessarily mean that they are equivalent.

A pilot study was therefore conducted to examine the equivalence between online and paper-and-pencil versions of the measures used in the current research.

Method

Design

A repeated-measures design was used.

Participants

Ten participants were recruited from the Doctoral Course in Clinical Psychology at the University of Southampton. The sample was comprised of trainees from all three years, 8 of whom were female and 2 were male. The age range was 24 to 31 years of age with a mean age of 27.

Measures

Measures were the same as those described in the main study (see method section) and comprised pencil-and-paper and online versions of the Expanded Attributional Style Questionnaire (EASQ; Peterson & Villanova, 1988), the Big Five Inventory (BFI; John, Donahue, & Kentle, 1991), and the Employee Assistance Programme Inventory (EAPI; Anton & Reed, 1994).

In order to maximise the likelihood of equivalence between the online and pencil & paper versions of the questionnaires the layout of the online versions were kept as similar as possible to the originals. For example likert scales were used where appropriate and the original numbering or symbols

for responses were retained. To make the survey user-friendly participants were given a choice of text size and a progress bar indicated their progress through the survey (Dillman, 2000). Dillman's (2000) principles for constructing web surveys were considered throughout the construction process.

The online survey was constructed using a piece of software called 'Psychosurvey'. This software was developed in response to the high demand for online surveys from the University of Southampton psychology department, and provides individuals with an overall structure for the survey incorporating demographics, information and debriefing pages. There are a range of options for questionnaire layout (e.g. number of pages over which questionnaires are presented, spacing of questions and instructions) and formats for responding to questions, (e.g. single or multiple responses using likert scales or drop-down boxes).

Procedure

Trainee Clinical Psychologists enrolled on the doctoral course at the University of Southampton were contacted by e-mail with a description of the pilot study and asked to respond via e-mail if they were interested in participating.

Participants were then either e-mailed a link to the online survey or sent a questionnaire pack. Half completed the pencil-and-paper measures first, the other half completed the online survey first. Approximately 2 weeks later they were asked to complete the alternative version. Following this they received a debriefing statement by e-mail.

Results

Kolmogorov-Smirnov tests were conducted on the individual subscales for both versions of the measures. Non-significant results ($p > 0.05$) were returned for all but two of the subscales (EAPI self-esteem online and BFI openness online) indicating that the majority of samples were normally distributed. One-tailed Pearson's correlation coefficients and Spearman's Rho were conducted accordingly to examine correlations between the subscales of the online questionnaires and their pencil-and-paper counterparts. Seven of the 12 pairs of subscales reached the 0.9 level of correlation advocated by Kline (1993). The remaining subscale pairs were correlated to 0.8. All the correlation coefficients were significant at $p < 0.01$ (see tables B1-B3).

Table B1.

Correlations between pencil-and-paper and online EAPI subscales.

	Pencil-and-paper EAPI subscales			
	Depression	Anxiety	Self-esteem	Work adjustment
Online EAPI subscales				
Depression	0.83**			
Anxiety		0.93**		
Self-esteem			0.78**	
Work adjustment				0.81**

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

Table B2. *Correlations between pencil-and-paper and online BFI subscales.*

	Pencil-and-paper BFI subscales				
	1. Op	2. Co	3. Ex	4. Ag	5. Ne
Online BFI subscales					
1. Openness	0.95**				
2. Conscientiousness		0.87**			
3. Extraversion			0.95**		
4. Agreeableness				0.98**	
5. Neuroticism					0.97**

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

Table B3. *Correlations between pencil-and-paper and online EASQ subscales*

	Pencil and paper EASQ subscales			
	Internality	Globality	Stability	Composite
Online EASQ subscales				
Internality	0.75**			
Globality		0.95**		
Stability			0.92**	
Composite				0.95**

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

In line with recommendations made by Salgado and Moscoso (2003) the means, standard deviations and internal consistency coefficients of the two versions were also examined. Alphas for both versions indicated

acceptable internal reliability and were generally comparable. Neither version demonstrated consistently higher or lower alphas than the other.

Table B4. Means, SDs, and Alpha coefficients for online and pencil-and paper measures.

Dimension	Pencil & Paper			Online		
	Mean	SD	Alpha	Mean	SD	Alpha
EAPI						
Depression	18.00	4.55	.85	18.33	3.61	.82
Anxiety	25.5	9.68	.95	24.00	7.93	.90
Self-esteem	26.00	5.94	.75	26.2	6.73	.84
Work Adjustment	18.70	3.02	.60	17.60	3.92	.68
BFI						
Openness	34.8	8.15	.92	33.1	7.96	.88
Conscientiousness	31.10	6.80	.81	31.20	4.59	.76
Extraversion	27.60	8.13	.94	26.70	8.18	.92
Agreeableness	34.50	8.15	.91	33.67	7.14	.89
Neuroticism	26.6	9.08	.95	26.2	9.70	.94
EASQ						
Internality	107.10	15.51	.75	107.40	14.88	.77
Globality	99.50	24.60	.92	98.40	18.29	.89
Stability	113.1	18.08	.90	110.00	17.19	.92
Composite	319.70	53.59	.95	315.80	39.41	.93
	N=10			N=10		

Paired samples t-tests were used to compare subscale pairs meeting parametric assumptions, and Wilcoxon Signed Ranks tests were used where these assumptions were violated. Significance levels for all pairings were above .05, indicating there were no significant differences between the means of the pencil-and-paper subscales and their online counterparts (see Tables B5 and B6).

Table B5. *Results of paired samples t-tests to compare means of online and pencil-and-paper subscales.*

Online & pencil-and-paper subscale pairing.	t	Significance value (2-tailed)
EAPI Depression	-.25	.81
EAPI Anxiety	1.26	.24
EAPI Work Adjustment	1.52	.16
BFI Conscientiousness	-.087	.93
BFI Extraversion	1.06	.32
BFI Agreeableness	.81	.44
BFI Neuroticism	.51	.63
EASQ Internality	-.09	.93
EASQ Globality	.38	.72
EASQ Stability	1.42	.19
EASQ Composite	-.62	.55

Table B6. Results of Wilcoxon Signed Ranks tests to compare means of online and pencil-and-paper subscales.

Online & pencil-and-paper subscale pairing.	Z	Significance value (2-tailed)
EAPI Self-esteem	-1.8	.86
BFI Openness	-1.3	.34

Discussion

Procedures for demonstrating the equivalence of online versions of pencil-and-paper tests were followed (Salgado and Moscoso, 2003). The results indicated that completion of the online and pencil-and-paper versions of the measures yielded broadly similar results. The equivalence of the online versions of the questionnaires used in the current study was therefore supported.

References not included in main reference section

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- Dillman, D.A. *Mail and Internet Surveys: The Tailored Design Method 2nd Edition*. New York: John Wiley & Sons, Inc.

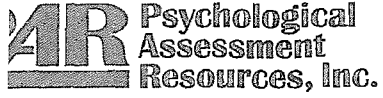
Fouladi, R.T., McCarthy, C.J., & Moller, N.P. (2002). Paper-and-pencil or online? Evaluating mode effects on measures of emotional functioning and attachment. *Assessment*, 9(2), 204-215.

Kline, P. (1993). *Handbook of Psychological Testing*. London: Routledge.

Salgado, J.F., & Moscoso, S. (2003). Internet based personality testing: equivalence of measures and assesses' perceptions and reactions. *International Journal of Selection and Assessment*, 14, 194-205.

Appendix D

Confirmation of EAPI licenses purchased from PAR.



Invoice 170129-1

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12978 7842 RT

59-1913294

expressed in US dollars.

Customer PO PP CK 1990	Sales Order 170129	Invoice Date 06-05-06	Page 1
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Appendix E

Description of EAPI subscales (Anton & Reed, 1994)

Anxiety

The anxiety subscale provides a measure of clinical anxiety, focusing on common affective, cognitive, and physiological symptoms. Individuals achieving high scores are likely to be experiencing:

- Muscle tension
- Shallow breathing
- Increased vigilance and scanning of their environment
- Undue concerns and worries about real or expected life events which may be experienced as intrusive and unwanted thoughts

Depression

The depression subscale is a measure of clinical depression, focussing on common affective, cognitive and physiological symptoms, including recent thoughts of suicide, hopelessness and resignation. High scorers may be experiencing:

- Fatigue
- Reduced interest and pleasure in normally enjoyable activities
- Feelings of sadness and hopelessness
- Social withdrawal
- Suicidal ideation

Self-Esteem Problems

The self-esteem subscale provides a measure of global self-esteem which taps negative self-evaluations and dissatisfaction with personal achievement.

High scores on this scale indicate:

- Self-criticism and dissatisfaction with perceived skills, abilities and achievement in comparison to their peers.
- Perception of the self as unassertive, excessively sensitive to criticism from others, physically or sexually unattractive to others.

Work Adjustment

The work adjustment subscale provides a measure of satisfaction with various features of the individual's work, including pay, opportunity for advancement, working conditions and sense of control over one's job. Correlates of high scores include:

- Dissatisfaction with job
- Poor fit with working environment
- Low motivation
- Marginal or inadequate job performance

Appendix F


Permission to use the BFI.

Date: Tue, 23 May 2006 13:08:13 -0700

From: Paulette Comeau <pcomeau@berkeley.edu>

To: aew104@soton.ac.uk

Subject: Re: Request to use Big Five Inventory

Part(s): 2 The BFI itself.doc application/msword 50.29 KB 

3 FAQ re the BFI.doc application/msword 50.29 KB 

Amy Wright

Professor Oliver John asked me to reply to your recent emails on his behalf. He said, "Yes, you are welcome to use the BFI so long as it is used for research and non-profit use, and I'd love to hear about your findings. Best wishes."

Professor John also asked me to give you the following information:

Benet-Martinez, V. and John, O.P. 1998. Los Cinco Grandes Across Cultures and Ethnic Groups: Multitrait Multimethod Analyses of the Big Five in Spanish and English. *Journal of Personality and Social Psychology*, 75(3), 729-750.

Table 3 lists the items scored for each factor; items with negative loadings are reversed-scored. Table 4 Note indicates how to compute mean ratings of the items on each scale. Item order and questionnaire are on p. 749.

John, O.P. and Srivastava, S. (1999). The Big Five Trait Taxonomy: History, Measurement, and Theoretical Perspectives. In L. A. Pervin & O. P. John (Eds.), *Handbook of Personality: Theory and*

Research. Second Edition
(pp.102-138). New York: The Guilford Press.

Page 132 lists the items and the scoring scheme.

We are attaching a copy of the BFI itself as well as
a document answering
frequently asked questions, for your information.
Best regards,
Paulette Comeau

Appendix G



Permission to use the EASQ

Date: Tue, 20 Jun 2006 15:41:47 -0400

From: chrispet@umich.edu

To: aew104@soton.ac.uk

Subject: EASQ

Part(s):  2 expandedASQ.pdf application/pdf 138.77 KB 

see attached

Appendix H

Ethical Approval

Date: Fri, 21 Jul 2006 10:27:16 +0100

From: "Smith K.M." <K.M.Smith@soton.ac.uk>

To: aew104@soton.ac.uk

Subject: ethical approval

Dear Amy

Just to let you know that your ethical form submitted has been approved.

Tina

Miss Kathryn Smith

Academic Administrator

School of Psychology

University of Southampton

Highfield

Southampton SO17 1BJ

Tel: 023 8059 3995 Fax: 023 8059 2606

Email: kms@soton.ac.uk

Appendix I

Letter to course directors

Amy Wright
Trainee Clinical Psychologist
C/O Programme Secretary
Doctoral Programme in Clinical Psychology
University of Southampton
34 Bassett Crescent East
Southampton
SO16 7PB

Dear Course Director,

Re. Permission to contact trainees regarding participation in research project

I am a third year trainee clinical psychologist at the University of Southampton. I am preparing my final year dissertation project, which aims to extend previous research on trainee clinical psychologists. I have provided an outline of my project below, and I would be grateful if you could consider it with a view to granting me permission to contact the trainee clinical psychologists enrolled on your course.

Background

Previous research has consistently documented that although trainee clinical psychologists appear to be a well-adjusted group overall, there is a subgroup of trainees who report significant problems in the areas of Psychological Adaptation (PA: as indicated by problems with self-esteem, depression and anxiety) and Work Adjustment (WA: characterised by dissatisfaction with work; and difficulties with fit with the working environment, motivation and performance). Personality and learning style are two variables that have been associated with poor outcomes in these areas. The aims of the current project are to extend previous research by exploring possible mediators of these relationships and thereby to identify possible areas for intervention.

Research aims

The current research aims to explore learning style as a possible mediator of the relationship between personality and PA/WA. In addition, attributional style will be examined as a possible mediator of the personality-learning style relationship. Exploration of these areas will help us to build a more detailed picture of the factors associated with specific aspects of poor functioning, and may suggest ways that vulnerable can be identified and supported.

Procedure

I am hoping to recruit 250 trainees across the three years of training and a variety of training courses to participate in the current study. Participation will

be anonymous and trainees will not be asked to identify the university at which they are enrolled. The study is of a cross-sectional single cohort design: participants will be required to complete four questionnaires at one point in time.

Completion of the measures will be in an online format via a computer with internet access. This is to enable collection of data from a large number of participants across a wide geographical area whilst minimising the costs usually associated with a postal survey. This procedure also limits the administrative tasks involved. If you give permission for me to contact trainees, the study will require minimal involvement of course staff. In order to reach all the trainees on participating courses I will require e-mail contact with a named member of the course staff. This staff member will be sent an e-mail containing the link to the website. S/he will be asked to forward the e-mail to all current trainees on the mailing list. Ideally the e-mail addresses should be those with the university suffix (i.e. '.ac.uk'). Depending on responses to the initial e-mail, there may then be a follow-up e-mail to recruit trainees who did not participate initially.

Participants who follow the link to the website will be asked to complete the following four questionnaires:

- The Expanded Attributional Style Questionnaire (EASQ)
- The Employee Assistance Program Inventory (EAPI) (Subscales relating to self-esteem, depression, anxiety, and work adjustment only).
- The Big Five Inventory (BFI)
- The Approaches and Study Skills Inventory for Students (ASSIST)

The questionnaires will take approximately 45 minutes to an hour to complete. If you would like to see copies of the questionnaires please contact me on the e-mail address provided at the end of this letter.

Ethical considerations

The current project was approved by the School of Psychology Ethics Committee, University of Southampton on 21.7.06.

Minimal risks to participants were identified. However it is possible that for some trainees the questions about mood might raise personal issues that may result in discomfort or distress. Participants will be told that if they do become concerned or distressed in response to the study, they should access the same sources of support which would be available to them in any other situation e.g. university tutor, GP, university counselling service or other appropriate source of support in their life.

Participants will be provided with an outline of the study in order to obtain informed consent prior to completion of the measures, and a debriefing statement is provided at the end. If they wish to withdraw consent at any time, there will be procedures in place for this and their data will be removed from the analysis.

If you would like to receive a summary of the results of the study upon completion, please indicate this in the appropriate space on the attached form.

Permission to contact trainees

If you are happy for me to contact trainees enrolled on your training course regarding participation in the study described above, I would be grateful if you could complete the relevant fields of the attached form and return to the e-mail address below. Alternatively you may return the completed form to the postal address at the top of this letter. In order to provide the opportunity to respond to any queries you may have I will follow-up this e-mail with a telephone call in approximately one week. Alternatively please do not hesitate to contact me on the following e-mail address should you have any queries in the meantime: aew104@soton.ac.uk.

Thank you for taking the time to consider my research, I look forward to hearing from you.

Yours sincerely

Amy Wright
Trainee Clinical Psychologist
Doctoral Programme in Clinical Psychology
University of Southampton

Supervised by:
Dr Lusia Stopa (Lecturer in Clinical Psychology) and
Ms Alison Gold (Programme Tutor) University of Southampton.

Appendix J

Response form for course directors

Response form

I

Course Director, give permission for Amy Wright, Trainee Clinical Psychologist, to contact the trainee clinical psychologists enrolled on the

course and to invite them to participate in her research project entitled "The contribution of personality, attribution style, and approach to learning to the professional functioning and psychological adaptation of trainee clinical psychologists".

I confirm that trainees enrolled on this course are contactable via a mailing list of university administered e-mail addresses (e.g. ending ".ac.uk"). (*please tick box*).

I confirm that there will be a member of the course staff who will liaise with the researcher in forwarding the relevant e-mails to current trainees. (*please tick box & provide contact details*)

Name:

Tel. no.

E-mail address:

Signature:

Print name:

Date:

Please tick this box if you would like to receive a summary of the results of the study upon completion.

Appendix K

Content of e-mail to trainees

Dear Trainees,

Thank you for taking the time to read this e-mail. I am a trainee clinical psychologist hoping to recruit fellow trainees to participate in my third year research project.

I am interested in the possible interactions between trainee clinical psychologists' experiences of the work environment/ psychological adaptation, and factors such as personality, approach to learning, and thinking about everyday events.

The study involves anonymous completion of an online survey comprised of four questionnaires. Completion of these questionnaires takes approximately 30 to 45 minutes.

If you are able to take the time to complete the questionnaires your participation would be greatly appreciated. Unfortunately it is not possible to save responses and come back to them at a later time so please make sure you set aside enough time to complete the survey in one sitting.

Please access the survey using the weblink below and typing the number '40' when prompted for the survey number.

<http://www.psychology.soton.ac.uk/psychosurvey/>

Further information regarding the research questions will be provided at the end of the survey. If you have any queries or are interested in receiving a summary of the findings once the study is complete please e-mail me at:

aew104@soton.ac.uk

The survey will be running until the end of February 2007. It has been approved by the School of Psychology Ethics Committee at the University of Southampton.

As it is specifically the views of trainee clinical psychologists that I am interested in I would ask that you do not forward this e-mail to anyone else. If you are not a trainee clinical psychologist and have received this e-mail in error I apologise for taking up your time but would ask that you do not complete the questionnaire.

Thank you for your time.

Best wishes

Amy Wright

Appendix L

Content of online information and consent page

Thank you for your interest in participating in my study.

Participation in the study entails completing four questionnaires relating to individual differences in the way trainee clinical psychologists think about everyday occurrences, personality, the study strategies they use, and their psychological adaptation and experience of the work environment.

Completion of these questionnaires takes approximately 30 to 45 minutes. It is not possible to save your responses and come back to finish the survey another time so please make sure you set aside enough time to complete the survey before starting. Most of the questionnaires are presented on one page however one questionnaire is longer and is presented over a number of pages. The questionnaires may appear in any order so please don't be disheartened if you start with the longer one. When working through the questions it is not possible to go back to a previous page so please make sure you are happy with your response before moving on.

Participation in this study is anonymous. You will be asked to enter your university e-mail address (i.e. the one that the original e-mail was sent to) as confirmation of your registration on a training course however this information will **not** be stored with your data.

Should you decide at any time that you do not to be included in the study you may withdraw consent by e-mailing me and including your date of birth. Your data will then be removed from the analysis.

Further information about the research questions will be provided at the end of the questionnaire. If you would like a summary of the findings of the study, please e-mail me and this will be provided once the study is complete.

If you have any queries about the study please do not hesitate to contact me, Amy Wright:

aew104@soton.ac.uk

This study has been granted ethical approval by the School of Psychology Ethics Committee at the University of Southampton.

If you are happy to continue with participating in the study please read the statements below and proceed as directed:

- I confirm that I have read and understood the above information section.
- I understand that I may withdraw consent and discontinue participation at any time.
- I understand that the data collected as part of this research project will be treated with confidentiality.

By selecting the box below you are giving consent to proceed under the conditions outlined above. If you are happy to continue with the study please ensure you select this box.

Appendix M

Content of online debriefing page

Thank you for completing my survey. Your participation is very much appreciated.

You have just completed four questionnaires relating to approach to learning, personality, attributional style and psychological adaptation/ work functioning. Using the data from this study I am hoping to answer some questions posed by previous research involving trainee clinical psychologists.

The literature has shown that factors such as personality and approach to learning can be associated with difficulties experienced by some trainees in relation to their satisfaction with the work environment (work adjustment), self-esteem and mood (psychological adaptation).

The research questions behind the current study extend this research by looking at these relationships in more depth and attempting to identify moderating factors which may be amenable to change and therefore intervention. Specifically it is suggested that learning style may contribute to the relationship between personality and work adjustment/ psychological adaptation.

A novel feature of this study was the use of a measure of attributional style, (the way in which individuals explain the occurrence of aversive events). It is suggested that if individuals have a tendency to perceive such events as having a cause that is internal ('i.e. 'it's me'), stable (unchanging over time) and global (present in a range of situations), then they are more likely to feel that such events are uncontrollable. In relation to the current study it is suggested that this may affect the ways in which trainees engage in studying and may also be implicated in some of the areas of difficulty outlined above.

It is hoped that the results of the current study will provide further information about the experiences of trainees and enable some suggestions to be made about appropriate support in relation to training needs and professional development.

If you have any further queries about the study or would like to receive further information once it is completed please contact me, Amy Wright, on the following e-mail address:

aew104@soton.ac.uk

If participating in this study has raised any concerns or issues that you feel you would like to discuss with someone you may like to consider approaching your university tutor, or contacting your GP or university counselling service.

Once again, thank you for participating in my study, your contribution is greatly valued.

Appendix N

Content of follow-up e-mail to trainees

Dear Trainees,

You may remember my previous e-mail asking you to consider participating in my online survey. I would like to say a huge thank you to all those who have taken the time to do so.

The survey will be running until the end of February and I would be very grateful if anyone who hasn't already participated or completed the survey might consider doing so. If you began the study on a previous occasion and were unable to complete it but would like to do so please feel free to have another go.

Unfortunately at the current time there is not an option to save responses and come back to them at a later time, I apologise for any inconvenience caused.

It takes approximately 30-45 minutes and is anonymous.

If you would like to participate in my study please follow the weblink below and enter the number '40' when prompted for the survey number.

<http://www.psychology.soton.ac.uk/psychosurvey/>

The study aims to explore the possible interactions between trainee clinical psychologists' experiences of the work environment/ psychological adaptation, and factors such as personality, approach to learning, and thinking about everyday events.

If you have any queries please do not hesitate to e-mail me. Once again, thank you for taking the time to read this e-mail and considering my study.

Best wishes for the new year.
Amy Wright