Distinguishing Between Adjustment Disorder and Depressive Episode in Clinical Practice: The Role of Personality Disorder

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Abstract

Background: There is significant symptomatic overlap between diagnostic criteria for adjustment disorder and depressive episode, commonly leading to diagnostic difficulty. Our aim was to clarify the role of personality in making this distinction.

Methods: We performed detailed assessments of features of personality disorder, depressive symptoms, social function, social support, life-threatening experiences and diagnosis in individuals with clinical diagnoses of adjustment disorder (n=173) or depressive episode (n=175) presenting at consultation-liaison psychiatry services across 3 sites in Dublin, Ireland.

Results: Fifty six percent of participants with adjustment disorder had likely personality disorder compared with 65% of participants with depressive episode. Compared to participants with depressive episode, those with adjustment disorder had fewer depressive symptoms; fewer problems with social contacts or stress with spare time; and more life events. On multi-variable testing, a clinical diagnosis of adjustment disorder (as opposed to depressive episode) was associated with lower scores for personality disorder and depressive symptoms, and higher scores for life-threatening experiences.

Limitations: We used clinical diagnosis as the main diagnostic classification and generalisability may be limited to consultation-liaison psychiatry settings.

Conclusions: Despite a substantial rate of likely personality disorder in adjustment disorder, the rate was even higher in depressive episode. Moreover, features of likely personality disorder are more strongly associated with depressive episode than adjustment disorder, even when other distinguishing features (severity of depressive symptoms, life-threatening experiences) are taken into account.

Keywords:

Adjustment disorders; depressive episode; personality disorders; diagnosis; social support; life events; stressor

1 Introduction

Adjustment disorder is a state of "subjective distress and emotional disturbance, usually interfering with social functioning and performance, and arising in the period of adaptation to a significant life change or to the consequences of a stressful life event" (World Health Organisation [WHO], 1992; p. 149). Onset of symptoms is usually within one month of the onset of the stressful event according to the *International Classification of Diseases (Tenth Edition)* (ICD-10) (WHO, 1992) or within three months according to the *Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition)* (DSM-5) (APA, 2013).

Both classification systems identify a subtype of adjustment disorder which features depressed mood as a central component. Diagnosing this subtype of adjustment disorder is especially challenging owing to the possibility of overlap with normal distress on the one hand, and depressive episode on the other (Casey et al., 2001); this renders the relationship between adjustment disorder and depressive episode both complex and difficult for clinicians to unravel. There have been suggestions that the questionable validity of the sub-categories of adjustment disorder add further to the lack of diagnostic clarity (Zimmermann et al, 2013).

The relationship between adjustment disorder and personality disorder is similarly complex. In 1952, DSM-I (APA, 1952) contained a condition described as "transient situational personality disorder" as well as "adult situational reaction" and "gross stress reaction". In DSM-II, the term "transient situational disturbance" was used instead, referring to a transient mental disturbance provoked by stress (APA, 1968). Adjustment disorder as it is currently understood first appeared in DSM-111 (APA 1980)

Today, DSM-5 includes "adjustment disorder" under the heading of "trauma-and stressor-related disorders" but notes that "some personality features may be associated with a vulnerability to situational distress that may resemble an adjustment disorder" (APA, 2013; p. 288). In addition, "stressors may also exacerbate personality disorder

symptoms" but a diagnosis of adjustment disorder should not be made unless the "stress-related disturbance exceeds what may be attributable to maladaptive personality disorder symptoms" (p. 288).

Similarly, ICD-10 classifies adjustment disorder under "neurotic, stress-related and somatoform disorders", and acknowledges that while "individual predisposition or vulnerability plays a greater role in the risk of occurrence and the shaping of manifestations of adjustment disorder" than it does in other "neurotic, stress-related and somatoform disorders", it is still "assumed that the condition would not have arisen without the stressor" (WHO, 1992).

Thus, the relationship between adjustment disorder and personality is both acknowledged in international classification systems yet somewhat unclear clinically. It is also under researched with few studies to inform clinical practice. Strain and colleagues found that personality disorder was commonly co-morbid (15%) with adjustment disorder (Strain et al., 1998). The ODIN study found no difference in prevalence of personality disorder between adjustment disorder and depressive episode (Casey et al., 2006). A study of 86 young male conscripts with adjustment disorder with depressed mood and 86 healthy controls confirmed the strong associations between adjustment disorder and certain personality traits by showing significantly higher scores on harm-avoidance and lower scores on self-directedness, cooperativeness, and self-transcendence (Na et al., 2012).

Overall these findings suggest a relationship between adjustment disorder and personality, and point to role for specific aspects of personality and temperament in shaping features of the disorder. There remain, however, significant deficits in the literature regarding the precise relationship between personality disorder and adjustment disorder, and, even more so, regarding their relationships, if any, with depressive episode, which is a common differential diagnosis for adjustment disorder.

This paper aimed to explore these relationships further in a consultation-liaison psychiatry setting in Ireland. More specifically, we hypothesized that (a) adjustment

disorder would be associated with a high level of personality disorder; and (b) personality disorder would have a stronger association with adjustment disorder than with depressive episode.

2 Methods

2.1 Study setting

This multi-centre study was set in 3 inner-city hospitals in Dublin, Ireland: the Mater Misericordiae University Hospital (MMUH), The Rotunda Hospital and St James's Hospital (SJH).

The MMUH is a general hospital with 570 beds providing secondary and tertiary care, with a public (i.e. non-fee-paying) consultation-liaison psychiatry service at the hospital providing (a) psychiatric consultations to the emergency department, outpatient clinics, and medical and surgical inpatient wards; and (b) inpatient psychiatric care for patients with complex combinations of medical and psychiatric need.

The Rotunda Hospital is one of Ireland's 3 National Maternity Hospitals, and provides psychiatry consultation-liaison services to inpatients and outpatients at the hospital, via the MMUH consultation-liaison service.

SJH is a 900 bed general hospital providing secondary and tertiary care. It has a multi-disciplinary liaison psychiatry team and a multidisciplinary psycho-oncology team, which provide a liaison psychiatry service to the emergency department, outpatient clinics, and medical and surgical wards. It provides a specialist service to the Oncology Service, the National Burns Unit and the Haematology Service.

2.2 Participants

This was an observational study with a longitudinal design. Participants were recruited at the MMUH from 12 May 2009, at Rotunda Hospital from 3 December 2010 and at SJH from 28 November 2011, until close of the study on 30 June 2012. At all 3 sites,

participants were recruited from all areas covered by the psychiatry services outlined in Section 2.1 (above), including inpatient medical wards, inpatient surgical wards, the emergency department, liaison psychiatry clinics and general psychiatry outpatient clinics. Contact lists for all of these services were examined daily and every individual who had been clinically diagnosed as having either an adjustment disorder (depressive or mixed anxiety and depression subtype, hereafter referred to as adjustment disorder) or depressive episode was invited to participate in the study, provided the individual fulfilled inclusion criteria and did not fulfil exclusion criteria.

Inclusion criteria were as follow:

- Participants must be aged 18 years or over
- Participants must be capable of giving informed consent
- Participants must be diagnosed clinically as having either an adjustment disorder or depressive episode
- Participants must be competent in the English language

It was hoped that there would be a roughly equal distribution of depressive episode and adjustment disorder and this turned out to be the case (Table 1). It is of note that clinical diagnoses were made by practicing psychiatrists and taken from the clinical notes; i.e. clinical diagnoses were made by psychiatrists not involved in other areas of the study and thus were broadly but not strictly informed by any classification system.

Exclusion criteria were as follow:

- Participants must not be aged under 18 years
- Participants must not be incapable of giving informed consent
- Participants must not be diagnosed as having psychotic depression
- Participants must not have a learning disability
- Participants must not have co-morbid substance or alcohol dependence.

Once each participant was recruited, the interviewer for the present study was blind to the clinical diagnosis in each case; i.e. the interviewer did not know whether the potential

participant had been invited to participate owing to a clinical diagnosis of adjustment disorder or depressive episode.

2.3 Sample size

Power calculations were based on methodology of Smith and Morrow (1996) using data from the comparison of adjustment disorder and depressive episode by Casey et al (2006). Casey et al (2006) used the Beck Depression Inventory (BDI) (Beck et al. 1961) and found a significant difference between groups. In order to have 95% confidence of detecting a difference of similar magnitude, at a significance level of $p<0.05$, we calculated we would need 180 individuals with adjustment disorder and 180 individuals with depressive disorder in our study.

2.4 Instruments

In addition to collecting basic demographic information, each participant was assessed using the following instruments:

(a) *Standardised Assessment of Personality – Abbreviated Scale (SAPAS)*
The SAPAS is a brief, simple screening tool for personality disorders, comprising eight questions with yes/no answers (Moran et al., 2003). The higher the score, the more evidence there is of personality disorder. A score of 3 on the screening interview of the SAPAS correctly identifies the presence of DSM–IV personality disorder in 90% of participants (Moran et al., 2003). The sensitivity and specificity of SAPAS are 0.94 and 0.85 respectively, when assessed using the Structured Clinical Interview for DSM–IV Personality Disorders (SCID–II), an established assessment for DSM–IV personality disorder (First et al., 1997).

(b) *Beck Depression Inventory (Version 2) (BDI-II)*
The BDI-II is a 21 item self-rated screening questionnaire, with an overall score range from 0 to 63 (Beck et al., 1961; 1996). A higher score indicates a greater

level of depression. Recommended cut-off scores are as follow: 0-13, minimal depression; 14-19, mild depression; 20-28, moderate depression; 29-63, severe depression (Beck et al., 1996). The BDI-II has high internal consistency: Cronbach's α is 0.92 in outpatients and 0.93 in college students (Beck et al., 1996). In terms of validity, the BDI-II has a correlation of 0.71 with the Hamilton Depression Rating Scale (Hamilton, 1960; Beck et al., 1996) and can distinguish effectively between bipolar and depressive disorders (Yonkers and Samson, 2008).

(c) *Social Functioning Schedule (SFS)*

The SFS interview takes approximately fifteen minutes to complete and covers twelve areas of functioning over the previous month, rated on a visual analogue scale (Remington and Tyrer, 1979). Areas covered include employment, self-care and hobbies. A composite score is generated with a high score indicating the greatest impairment. This instrument has high reliability and validity in this population (Casey et al., 1985; Remington and Tyrer, 1979).

(d) *Oslo Social Support Scale*

The Oslo Social Support Scale (Nosikov and Gudex, 2003) measures perceived concern shown by others, ease in obtaining practical help from neighbours, and people to count on when serious personal problems arise. The lower the score, the more social support the individual has. The Cronbach's alpha (reflecting internal correlation between items) for the Oslo-3 Social Support Scale (OSS-3) is 0.60, consistent with the multidimensional structure of the index (Dalgard et al., 2006; Dalgard, 2008).

(e) *List of Threatening Experiences*

The List of Threatening Experiences requires yes/no responses regarding the occurrence of specific life events, including major illness, injury or assault, major financial crisis, and the end of significant relationships, amongst other events (Brugha et al., 1985). The more life-threatening experiences the individual

reports, the higher the score. This scale has high test-retest reliability, good agreement with informant information, and high concurrent validity, with high sensitivity and specificity (Brugha and Cragg, 1990).

(f) *Schedule for Clinical Assessment in Neuropsychiatry (Version 2) (SCAN)*
The SCAN comprises a set of instruments devised for the study and assessment of psychopathology (Wing et al., 1990; Kobak et al., 2008). The SCAN has overall reliability (κ) of 0.67 for current diagnosis and also has strong validity, as evidenced by concordance rates with DSM diagnoses (Silverstone, 1993). We used sections 6 (relating to "depressed mood and ideation"), 7 ("thinking, concentration, energy, interests"), 8 ("bodily functions") and 13 ("stress and adjustment disorders") of the SCAN.

2.5 Diagnostic gold standard & measures of suicidality

Unlike clinical diagnosis, SCAN makes the diagnosis using symptoms only, without taking account of context. Accordingly, we chose clinical diagnosis as the diagnostic gold standard for this study as recommended by experts in this area (Strain 2008), as clinical diagnosis, unlike structured interviews, considers **both** symptoms and their context (Malt 1996, Lougharne 2008, Baumeister 2009, Carta 2009).

2.6 Statistical analysis

Data were recorded, stored and analysed data using PASW (Predictive Analytics SoftWare) (Version 18). Data were normally distributed. Throughout the Results section, *p* values of less than 0.05 were considered statistically significant, except where multiple tests were performed. In such circumstances, the cut-off for statistical significance was reduced appropriately, using Bonferroni corrections (as indicated).

Comparisons of means were performed using the Student t-test, and comparisons of categorical variables were performed using the Chi-Square test. Consistent with Shear et al (2000) and Taggart et al (2006), we used Cohen's kappa to assess concordance

between clinical and SCAN diagnoses. Kappa values greater than 0.8 are considered almost perfect agreement; values between 0.4 and 0.7 are considered moderate to good agreement; and values below 0.4 are considered fair to poor (Fayers and MacHin, 2000).

We created two binary logistic multi-variable regression models, one with clinical diagnosis (adjustment disorder or depressive episode) as the dependent ("outcome") variable, and one with SCAN diagnosis as the dependent variable. Variables considered for inclusion as independent variables were those variables which, on uni-variable testing, differed between the two diagnostic groups to the point of statistical significance or borderline statistical significance.

In order to reduce the possibility of collinearity (the situation in which one or more variables are so closely related to each other that the model cannot reliably distinguish the independent effects of each variable), we did not include variables which had moderate or high bi-variable correlations with each other within the same model. Correlation coefficients below 0.25 were regarded as "no correlation"; correlation coefficients between 0.25 and 0.5 were regarded as "low correlation"; correlation coefficients between 0.5 and 0.75 were regarded as "moderate correlation"; and correlation coefficients between 0.75 and 1.0 were regarded as "high correlation" (Lucey, 2002). In order to check for residual multi-collinearity in the models, a "tolerance value" was calculated for each independent variable; tolerance values below 0.25 indicate possible multi-collinearity, and tolerance values below 0.10 indicate significant problems with multi-collinearity (Katz, 1999).

2.6 Ethics

Prior to commencement, this study was ethically approved by the Research Ethics Committee of the Mater Misericordiae University Hospital (12 May 2008), the Research Ethics Committee of the Rotunda Hospital (3 December 2009), and the Research Ethics Committee for SJH (28 November 2011). This study was performed in accordance with

the Declaration of Helsinki (World Medical Association, 2008). All participants provided written informed consent.

3 Results

3.1 Participants and setting

Three hundred and seventy individuals were identified as potential participants in the study. Three hundred and forty-eight (94.1%) individuals participated. Among participants, 173 (49.7%) had a clinical diagnosis of adjustment disorder and 175 (50.3%) had depressive episode. 235 (63.5 %) were female and mean age was 43.8 years (standard deviation [SD] 14.2).

The two diagnostic groups (adjustment disorder and depressive episode) did not differ significantly in terms of age (t=0.418, p=0.676), gender (Chi Square= 0.105, p=0.746), marital status (Chi Square=2.011, p=0.746), living arrangements (Chi Square=1.524, p=0.432), place of birth (Chi Square=0.008, p=0.928) or employment status (Chi Square=7.229, p=0.704) (Table 1).

A separate analysis of the diagnostic breakdown by location showed that similar proportions were diagnosed clinically with adjustment disorder and depressive episode whether they were seen in the emergency department, the medical and surgical in-patient wards or the out-patient clinics. Furthermore the prevalence of personality disorder and life events in each diagnostic group did not differ by location (data available on request).

3.2 Personality disorder

Mean score on SAPAS was higher for participants with depressive episode (mean 3.5, SD 1.8) compared to participants with adjustment disorder (mean 3.3, SD 1.2) (t=-2.649, p=0.034). Ninety-seven participants with adjustment disorder (56.4%) scored 3 or more on SAPAS (indicating a 90% likelihood of personality disorder), compared to 133

(64.9%) participants with depressive episode (Chi-Square=2.649, p=0.104). Traits of being a worrier (74.4%) and temper problems (33.1%) were common in adjustment disorder, but more common in depressive episode (78.7% and 40.2% respectively). Impulsivity (41.3%) and dependence on others (33.1%) were more common in adjustment disorder than in depressive episode (40.2% and 32.2% respectively). None of these reached significance. However participants with depressive episode (46.6%) were significantly more likely to describe themselves as perfectionists than participants with adjustment disorder (33.1%) (Chi Square= -2.126, p=0.034) (Table 2).

3.3 Clinical parameters

Mean BDI-II score for participants with adjustment disorder was 24.7 (SD: 11.2), indicating moderate depression, and mean score for participants with depressive episode was 31.2 (SD: 11.7), which is significantly higher (t=-3.53, p<0.001) and indicates severe depression. In terms of individual items within the BDI-II, participants with depressive episode had higher scores in all items.

There was a statistically significant difference between the adjustment disorder and depressive episode groups in overall score for social functioning (t=-2.45, p=0.015), although participants with depressive episode demonstrated greater impairment on three specific SFS items: problems with social contacts (t=-3.91, p<0.001), problems with spare time (t= -3.2, p= 0.002) and stress with spare time (t=-3.66, p<0.001). There was, however, no difference between the two groups in terms of perceived social support: participants with adjustment disorder had a mean score of 10.3 (SD: 2.7) the Oslo Social Support Scale, compared to 9.8 (SD: 2.5) for participants with depressive episode (t= 1.859, p=0.064).

Mean total score for life events was significantly higher in participants with adjustment disorder (2.2, SD: 1.7) compared to those with depressive episode (1.2, SD: 1.5; t=5.484, p<0.001) (Table 3). More specifically, participants with adjustment disorder were significantly more likely to have suffered serious illness, injury or assault (Chi-

Square=17.45, p<0.001); experienced the death of a parent child or spouse (Chi-Square=9.69; p=0.002); or broken off a steady relationship (Chi-Square=13.82, p<0.001).

3.4 Diagnostic concordance

Both clinical and SCAN diagnoses were recorded for 347 participants. There were significant differences between clinical and SCAN diagnoses: while 97.7% of individuals with a clinical diagnosis of depressive episode also had a SCAN diagnosis of depressive episode, only 26.6% of individuals with a clinical diagnosis of adjustment disorder also had a SCAN diagnosis of adjustment disorder (Chi Square = 40.48, p<0.0001). The remaining 73.4% were diagnosed with a depressive episode by SCAN. Cohen's kappa was 0.232 (p<0.001), reflecting a fair to poor level of concordance. The sensitivity and specificity of SCAN in diagnosing adjustment disorder are 91.8% and 57.2% respectively.

3.5 Binary logistic multi-variable regression models

For the binary logistic multi-variable regression model with clinical diagnosis as the dependent variable, the independent variables considered for inclusion were those which, on uni-variable testing, differed between the two diagnostic groups to the point of statistical significance or borderline statistical significance: i.e. BDI-II total score; SFS total score; List of Threatening Experiences total score and SAPAS total score. In order to avoid collinearity, SFS total score was excluded owing to its significant correlation with BDI-II total score (Spearman's rank correlation coefficient 0.486; p<0.001); BDI-II total score, rather than SFS total score, was included owing to its superior discrimination between the diagnostic groups (p<0.001, as compared to p=0.015 for SFS total score).

All three independent variables had statistically significant effects (p<0.01) (Table 4); i.e. a diagnosis of depressive episode (as opposed to adjustment disorder) was associated with relatively higher BDI-II and SAPAS scores, and lower scores on the List of

Threatening Experiences. For all three independent variables, collinearity values were greater than 0.25 indicating no problems with multi-collinearity.

We then generated a model with SCAN diagnosis as the dependent variable. Independent variables were the same as those included in the previous model (Table 4). In this model, only one of the independent variables (BDI-II total score) had strongly statistically significant effects ($p<0.001$); i.e. a diagnosis of depressive episode (as opposed to adjustment disorder) was associated with higher BDI-II scores. Total score on the List of Threatening Experiences was also significant ($p=0.021$). Again, all collinearity values were greater than 0.25 indicating no problems with multi-collinearity.

4. Discussion

This study addresses an important issue in psychiatric practice, the relationship of personality to adjustment disorder and depressive episode. Participants were from a consultation-liaison psychiatry population and a psychiatric out-patient population from a general hospital, while this might be seen as limiting the generalisability of findings to community-based mental health services, it has the merit of focusing on a population in which adjustment disorder is particularly common (Mitchell et al 2011) and so will provide useful information for consultation-liaison psychiatry teams. This diversity of participants also spans the full range of severity, from less severe cases treated as outpatients to more severe cases treated as inpatients. Finally, this study used a variety of validated methodologies to assess a broad range of parameters including social support, social function and personality disorder (First et al., 1997; Moran et al., 2003) which was the primary focus of the study.

In designing this study, we considered using only a structured interview for diagnosis and concluded that the inherent flaws in the diagnostic instruments with respect to adjustment disorder would result in a conflation of adjustment disorder with depressive episode. Hence, to decision to use both SCAN (Wing et al 1990) and clinical diagnosis. Furthermore, clinical diagnoses, which are informed by ICD-10 in a broad rather than a

strict fashion, optimise the applicability of findings to everyday clinical practice, where clinical diagnoses are generally made with a background awareness of the individual, rather than the strict application of formal diagnostic criteria based on symptom numbers and duration.

This study was carried out in a number of settings including the Emergency Departments and in-patient and out-patient clinics. The absence of any differences in the diagnostic breakdown or in the proportions with personality disorder suggests that it was appropriate to analyse the groups as a whole.

Fifty-six percent of participants with adjustment disorder had likely personality disorder compared with 65% of participants with depressive episode. More specifically, participants with depressive episode were significantly more likely to describe themselves as perfectionists. On multi-variable testing, a clinical diagnosis of adjustment disorder (as opposed to depressive episode) was associated with lower scores for personality disorder and depressive symptoms, and higher scores for life events. The latter was unsurprising since a recent life stressor is a requirement for a diagnosis of adjustment disorder but not for depressive episode (WHO 1992). Using SCAN diagnosis multivariable testing showed that a higher BDI-II score was the sole variable associated with depressive episode compared to adjustment disorder. Diagnostic concordance between clinical and SCAN diagnoses was fair to poor, especially for adjustment disorder.

The first hypothesis of this study was that adjustment disorder would be associated with a high level of personality disorder. Our results confirmed this hypothesis as we found that 56% participants with adjustment disorder had likely personality disorder on SAPAS. This is consistent with the findings of Na et al (2012), who found strong associations between adjustment disorder and certain personality traits. Using the SAPAS, we found that the most common personality traits among participants with adjustment disorder related to being a worrier, impulsivity, perfectionism, and dependence on others. These

traits may render them less able to cope with stressful events in their lives although this hypothesis was not tested in this study.

The presence of personality disorder in a large proportion of individuals with adjustment disorder must be set against a background of high co-morbidity between personality disorder, measured categorically or dimensionally, and many axis 1 disorders (Tyrer, 1985; Andrews et al., 1990; Newton-Howes et al., 2006; Hettema et al., 2006). Of particular interest in this study was the comparator group with depressive episode.

The second hypothesis of this study was that personality disorder would have a stronger association with adjustment disorder than with depressive episode. Our findings do not support this hypothesis since both the mean score on SAPAS and the frequency of co-morbid personality disorder was higher for participants with depressive episode compared to participants with adjustment disorder,

Both ICD-10 (WHO, 1992) and DSM-5 (APA, 2013) point to the role of personality in shaping the response to stressors in the aetiology of adjustment disorder. On this basis, a stressor which seems overwhelming to one individual may appear relatively minor to a person with greater resilience, better coping skills, different life experiences, or different personality attributes (Strain et al., 2008). Although adjustment disorder might be considered to share some of the same associations as personality disorder (i.e. people with personality disorder might have greater predisposition to adjustment problems) (Looney and Gunderson, 1978), the results of our multivariable analysis do not support this. They show that the impact of personality is much greater in shaping symptoms in those with depressive episode compared to adjustment disorder despite the presence of fewer stressful events in the former. This represents an important difference between the two disorders and one that has not hitherto been identified. This is also contrary to the salience given by the current classifications to the role of personality in the aetiology of adjustment disorder compared to other disorders. This should be amended in ICD-11 to more accurately the role of personality in many common mental disorders (Tyrer 2007). The respective pathways by which personality and life events modulate symptom severity

is yet to be established but the results of our study suggest that it differs in each condition. This requires further study.

It is interesting that the multivariable analysis using SCAN diagnosis identified only the severity of the BDI score as associated with a diagnosis of depressive episode. This is a likely reflection of the limitations of structured instruments in the diagnosis of adjustment disorder and the consequent under-powering of the adjustment disorder category as diagnosed by SCAN. In our opinion the "gold standard" for diagnosing adjustment disorder should continue to be clinical diagnosis.

This association between adjustment disorder and personality disorder, although substantial, does not warrant a diagnostic term such as "transient situational personality disorder", of DSM-I (APA, 1952), which was later, rightly abandoned (APA, 1968). Our findings are more consistent with DSM-5's (American Psychiatric Association 2013) inclusion of adjustment disorder under the heading of "trauma- and stressor-related disorders". This recent change in the positioning of adjustment disorder aligns it with ICD-10 (WHO, 1992).

Potential limitations to this study include the absence of a control group (i.e. without *any* mental disorder), and the use of clinical diagnoses and a consultation-liaison psychiatry population for the study. However, this would require a design and resources not currently available although clarifying the distinction between those with adjustment disorder and those experiencing events to which they react with symptoms commensurate with the severity of the stressor are required so as to distinguish what is adaptive from what is pathological in the stress diathesis (Casey et al 2001).

The merits and demerits of the patient population used, a consultation-liaison psychiatry population, have been discussed above and this is not necessarily a study limitation once the generalizability of study findings is understood correctly; i.e. findings are mostly applicable to consultation-liaison psychiatry settings but are potentially less applicable to other settings (e.g. community-based mental health services, primary care). Clearly the

relationship between adjustment disorder and personality in these settings requires further examination.

The strengths of this study include the relatively large sample size derived from power calculations. Previous studies examining the relationship between adjustment disorder and personality have had smaller samples (Casey et al 2006). In addition we have controlled for a wide range of confounding variables. By using clinical diagnosis as well as a structured interview based diagnosis we have made the findings more relevant to clinical practice.

5. Conclusions

This study has demonstrated that the triad of depressive symptoms, personality disorder and threatening events is still the best way of distinguishing between adjustment disorder and depressive episode. Overall, the strongest point of distinction between the two disorders is level of depressive symptoms: the more depressive symptoms an individual displays, the greater the likelihood of depressive episode rather than adjustment disorder. Yet even within the adjustment disorder group the severity of symptoms is in the moderate range.

Only the personality trait of perfectionism is significantly more common in those with depressive episode, compared to adjustment disorder. Personality disorder is also more common in those with depressive episode. On this basis, we propose that the emphasis that ICD-10 and, especially, DSM-5 place on personality features in adjustment disorder should be reconsidered.

The findings from this study will prove useful not only in making the diagnostic distinction between adjustment disorder and depressive episode in clinical practice, but also in unravelling the complex interactions between personality, stressful life-events, and subsequent symptomatology. An awareness of the interactions between these factors may also help guide therapeutic decision-making and treatment.

Future research could examine the complex relationships between personality disorder and both adjustment disorder and expanding beyond the features of personality *disorders* to include less severe personality-related problems (Crawford et al., 2011), various domains of personality pathology (Mulder et al., 2011) and personality diatheses, which may confer vulnerability to specific disorders (Tyrer, 2007).

Future studies should also examine the association between personality and common mental disorders such as depressive episode and adjustment disorder in populations that include community out-patient clinics and primary care. The next and more challenging step will then be to examine the mechanism by which personality disorder or specific traits and dimensions influence the response to stressful life events such that adjustment disorder is a less common outcome than depressive episode.

References

American Psychiatric Association, 1952. Diagnostic and Statistical Manual of Mental Disorders (First Edition). American Psychiatric Association, Washington DC.

American Psychiatric Association, 1968. Diagnostic and Statistical Manual of Mental Disorders (Second Edition). American Psychiatric Association, Washington DC.

American Psychiatric Association. 1980. Diagnostic and Statistical Manual of Mental Disorders (3rd. edition). American Psychiatric Association. Washington DC.

American Psychiatric Association, 2013. *Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition).* American Psychiatric Association, Washington DC.

Andrews, G., Stewart, G., Morris-Yates, A., Holt, P., Henderson, S., 1990. Evidence for a general neurotic syndrome. Br. J. Psychiatry 157, 6-12.

Baumeister, H., Maercker, A. & Casey, P., 2009. Adjustment disorder with depressed mood: a critique of its DSM-IV and ICD-10 conceptualisations and recommendations for the future. *Psychopathology*, 42**,** 139-47.

Beck, A.T., Ward, C.H., Mendelsohn, M., Mock, J., Erbaugh, J., 1961. An inventory for measuring depression. Arch. Gen. Psychiatry 4, 561-571.

Beck, A.T., Steer, R.A., Brown, G.K., 1996. Beck Depression Inventory-II Manual. Psychological Corporation, San Antonio, TX.

Brugha, T.S., Bebbington, P., Tennant, C., Hurry, J., 1985. The List of Threatening Experiences: a subset of 12 life event categories with considerable long-term contextual threat. Psychol. Med. 15, 189-194.

Brugha, T.S., Cragg, D., 1990. The List of Threatening Experiences: the reliability and validity of a brief life events questionnaire. Acta Psychiatr. Scand. 82, 77-81.

Carta MG, Balestrieri M, Murru A, Hardoy MC., (2009) Adjustment Disorder: epidemiology, diagnosis and treatment. Clin Pract Epidemiol Ment Health. 26; 15.

Casey, P., Dowrick, C., Wilkinson, G., 2001. Adjustment disorders: Fault line in the psychiatric glossary. Br. J. Psychiatry 179, 479-481.

Casey, P., Maracy, M., Kelly, B.D., Lehtinen, V., Ayuso-Mateos, J.-L., Dalgard, O.S., Dowrick, C., 2006. Can adjustment disorder and depressive episode be distinguished? Results from ODIN. J. Affect. Disord. 92, 291-297.

Casey, P.R., Tyrer, P.J., Platt, S., 1985. The relationship between social functioning and psychiatric symptomatology in primary care. Soc. Psychiatry 20, 5-9.

Crawford, M.J., Koldobsky, N., Mulder, R., Tyrer, P., 2011. Classifying personality disorder according to severity. J. Pers. Disord. 25, 321-330.

Dalgard, O.S., 2008. Explanation of OSS-3. RIVM, Bilthoven.

Dalgard, O.S., Dowrick, C., Lehtinen, V., Vazquez-Barquero, J.L., Casey, P., Wilkinson, G., Ayuso-Mateos, J.L., Page, H., Dunn, G., ODIN Group, 2006. Negative life events, social support and gender difference in depression. A multinational community survey with data from the ODIN study. Soc. Psychiatry Psychiatr. Epidemiol. 41, 444-451.

Fayers, P., MacHin, D., 2000. Quality of life: assessment, analysis and interpretation. Wiley, Chichester.

First, M.B., Gibbon, M., Spitzer, R.L., Williams, J.B.W., Benjamin, L.S., 1997. The Structured Clinical Interview for DSM–IV Axis II Personality Disorders (SCID–II). American Psychiatric Press, Washington, DC.

Hamilton, M., 1960. A rating scale for depression. J. Neurol. Neurosurg. Psychiatry 23, 56-62.

Hettema, J.M., Neale, M.C., Myers, J.M., Prescott, C.A., Kendler, K.S., 2006. A population-based twin study of the relationship between neuroticism and internalizing disorders. Am. J. Psychiatry 163, 857-864.

Katz, M.H., 1999. Multivariable Analysis. Cambridge University Press, Cambridge.

Kobak, K.A., Skodol, A.E., Bender, D.S., 2008. Diagnostic measures for adults. In: Rush, A.J., First, M.B., Blacker, D. (Eds.), Handbook of Psychiatric Measures (Second Edition). American Psychiatric Publishing, Inc., Washington, DC and London, pp. 35-60.

Laugharne J, van der Watt G, Janca A., 2009. It is too early for adjusting the adjustment disorder category. Curr Opin Psychiatry; 22:50-4.

Looney, J.G., Gunderson, E.K., 1978. Transient situational disturbances: course and outcome. Am. J. Psychiatry 135, 660-663.

Lucey, T., 2002. Quantitative Techniques (Sixth Edition). Thomson, London.

Mitchell AJ, Chan M, Bhatti H et al. 2011.Prevalence of depression, anxiety, and adjustment disorder in oncological, haematological, and palliative-care settings: a meta-analysis of 94 interview-based studies. 12,2. 160-74. Lancet Oncology.

Malt UF, Huyse FJ, Herzog T, Lobo A, Rijssenbeek AJ., 1996.The ECLW Collaborative Study: III. Training and reliability of ICD-10 psychiatric diagnoses in the general hospital setting--an investigation of 220 consultants from 14 European countries. European Consultation Liaison Workgroup. J Psychosom Res. 41: 451-63.

Moran, P., Leese, M., Lee, T., Walters, P., Thornicroft. G., 2003. Standardised Assessment of Personality – Abbreviated Scale (SAPAS): preliminary validation of a brief screen for personality disorder. Br. J. Psychiatry 183, 228-232.

Mulder, R.T., Newton-Howes, G., Crawford, M.J., Tyrer, P.J., 2011. The central domains of personality pathology in psychiatric patients. J. Pers. Disord. 25, 364-377.

Na, K.S., Oh, S.J., Jung, H.Y., Lee, S.I., Kim, Y.K., Han, C., Ko, Y.H., Paik, J.W., Kim, S.G., 2012. Temperament and character of young male conscripts with adjustment disorder: a case-control study. J. Nerv. Ment. Dis. 200, 973-977.

Newton-Howes, G., Tyrer, P., Johnson, T., 2006. Personality disorder and the outcome of depression: a meta-analysis of published studies. Br J Psychiatry 188, 13-20.

Nosikov, A., Gudex, C., 2003. EUROHIS: Developing Common Instruments for Health Surveys. IOS Press/Ohmsha, Amsterdam.

Remington, M., Tyrer, P., 1979. The social functioning schedule - a brief semi-structured interview. Soci. Psychiatry 14, 151-157.

Shear, M.K., Greeno, C., Kang, J., Ludewig, D., Frank, E., Swartz, H., Hanekamp, M., 2000. Diagnosis of nonpsychotic patients in community clinics. Am. J. Psychiatry 157, 581-587.

Silverstone, P.H., 1993. SCAN accurately gives diagnoses according to DSM-III-R criteria: validation in psychiatric patients using SADS. Int. J. Methods Psychiatr. Res. 3, 209-213.

Smith, P.G., Morrow, R.H., 1996. Field Trials of Health Interventions in Developing Countries: A Toolbox (Second Edition). Macmillan, London.

Strain, J.J., Klipstein, K.G., Newcorn, J.H., 2008. Adjustment disorders. In: Hales, R.E., Yudofsky, S.C. and Gabbard, G.O. (Eds.), The American Psychiatric Publishing Textbook of Psychiatry (Fifth Edition). American Psychiatric Publishing Inc., Washington DC and London, pp. 755-775.

Strain, J. J., Smith, G. C., Hammer, J. S., McKenzie, D. P., Blumenfield, M., Muskin, P., Newstadt, G., Wallack, J., Wilner, A. & Schleifer, S. S., 1998. Adjustment disorder: a multisite study of its utilization and interventions in the consultation-liaison psychiatry setting. *Gen Hosp Psychiatry*, 20**,** 139-149

Taggart, C., O'Grady, J., Stevenson, M., Hand, E., Mc Clelland, R., Kelly, C., 2006. Accuracy of diagnosis at routine psychiatric assessment in patients presenting to an accident and emergency department. Gen. Hosp. Psychiatry 28, 330-335.

Tyrer, P., 1985. Neurosis divisible? Lancet 1, 685-688.

Tyrer, P., 2007. Personality diatheses: a superior explanation than disorder. Psychol Med. 37, 1521-1525.

Wing, J.K., Babor, T., Brugha, T., Burke, J., Cooper, J.E., Giel, R., Jablenski, A., Regier, D., Sartorius, N., 1990. SCAN: Schedules for Clinical Assessment in Neuropsychiatry. Arch. Gen. Psychiatry 47, 589-593.

World Health Organisation, 1992. *International Classification of Diseases (Tenth Edition).* World Health Organisation, Geneva.

World Medical Association, 2008. WMA Declaration of Helsinki - Ethical Principles for Medical Research Involving Human Subjects. World Medical Association, Ferney-Voltaire.

Yonkers, K.A., Samson, J.A., 2008. Mood disorders measures. In: Rush, A.J., First, M.B., Blacker, D. (Eds.), Handbook of Psychiatric Measures (Second Edition). American Psychiatric Publishing, Inc., Washington, DC and London, pp. 499-528.

Zimmerman, M., Martinez, J. H., Dalrymple, K., Chelminski, I. & Young, D., 2013. Is the distinction between adjustment disorder with depressed mood and adjustment disorder with mixed anxious and depressed mood valid? Ann Clin Psychiatry, 25**,** 257-65.

Table 1

Socio-demographic features of study participants by clinical diagnosis

Variable		**Adjustment disorder n=185**	**Depressive episode n=185**	**All participants n=370**
Age (mean years, SD)		43.5 (14.5)	44.1 (13.9)	43.8 (14.2)
Gender (n, %)	Male	66 (35.7)	69 (37.3)	135 (36.5)
	Female	119 (64.3)	116 (62.7)	235 (63.5)
Marital status (n, %)	Never married	65 (35.5)	66 (36.5)	133 (36)
	Married	67 (36.6)	74 (40.9)	141 (38.7)
	Separated or divorced	30 (16.4)	24 (13.3)	54 (14.8)
	Widowed	10 (5.5)	6 (3.3)	16 (4.4)
	Cohabiting	11 (6)	11 (6.1)	22 (6)
Living arrangement (n, %)	Lives alone	42 (23.2)	39 (21.5)	81 (21.8)
	Lives with others	139 (76.8)	142 (78.5)	281 (78.2)
Place of birth (n, %)	Ireland	155 (84.7)	151 (84.4)	316 (85.4)
	Overseas	28 (15.3)	28 (15.6)	54 (14.6)
Employment status (n, %)	Employed outside the home	66 (35.7)	59 (33.5)	125 (35.5)
	Works in the home	29 (15.7)	36 (20.5)	65 (18.5)
	Unemployed	23 (12.4)	19 (10.8)	42 (11.9)
	Medically unfit	36 (19.5)	46 (26.1)	82 (23.3)
	Other	22 (11.9)	16 (9.1)	38 (10.8)
Setting	Emergency department	44 (24)	43 (23.6)	87 (23.5)
	Ward	60 (38.2)	46 (25.3)	106 (28.6)
	Outpatient clinics	79 (43.2)	93 (51.1)	172 (46.5)

Notes for Table 1

SD: Standard deviation

There were no significant differences between the groups in any of these variables.

Table 2

Standardised Assessment of Personality - Abbreviated Scale (SAPAS) scores of individuals with adjustment disorder and depressive episode

Variable	**Adjustment disorder n=172**	**Depressive episode n=174**	**Statistic**	
	Positive score (n, %)[a]	**Positive score (n, %)[a]**	**Chi-Square**	**P**
In general, do you have difficulty making and keeping friends?	43 (25)	54 (31)	2.639	0.267
Would you normally describe yourself as a loner?	53 (30.8)	68 (39.1)	2.599	0.107
In general, do you trust other people?	51 (29.7)	66 (37.9)	2.650	0.104
Do you normally lose your temper easily?	57 (33.1)	70 (40.2)	1.872	0.171
Are you normally an impulsive sort of person?	71 (41.3)	70 (40.2)	0.039	0.843
Are you normally a worrier?	128 (74.4)	137 (78.7)	0.899	0.343
In general, do you depend on others a lot?	57 (33.1)	56 (32.2)	0.036	0.850
Are you a perfectionist?	**57 (33.1)**	**81 (46.6)**	**6.489**	**0.011**
Total score, mean (SD)	**3.3 (1.8)**	**3.5 (1.8)**	**-2.126[b]**	**0.034[b]**
N (%) greater than 3 (cut off for probable personality disorder	97 (56.4)	113 (64.9)	2.649	0.104

Note for Table 2

SAPAS: Standardised Assessment of Personality - Abbreviated Scale (Moran et al., 2003).

[a]A positive score is the answer 'Yes' to questions 1, 2 4-8, and answer 'no' to question 3.

[b]T-test was used to compare the means for the total score in the 2 diagnostic groups.

Table 3

List of Threatening Experiences scores of individuals with adjustment disorder and depressive episode

Life event	**Adjustment disorder**	**Depressive episode**	**Statistic**	
	n (%)	**n (%)**	**Chi-square**	**p**
You yourself suffered serious illness, injury or assault	**81 (45.5)**	**44 (21.3)**	**17.45**	**<0.001**
A serious illness, injury or assault happened to a close relative	43 (26.2)	27 (18.4)	4.70	0.03
Your parent, child or spouse died	**28 (17.9)**	**10 (5.1)**	**9.69**	**0.002**
A close family friend or another relative died	45 (29.7)	26 (19.1)	6.53	0.011
You had a separation due to marital difficulties	15 (9.7)	7 (4.4)	3.15	0.076
You broke off a steady relationship	**31 (20.0)**	**9 (6.6)**	**13.82**	**<0.001**
You had a serious problem with a close friend, neighbour or relative	52 (31.7)	31 (19.9)	7.14	0.008
You became unemployed or were seeking work unsuccessfully for more than one month	19 (13.1)	19 (13.2)	1.03	0.598
You were sacked from your job	9 (6.2)	7 (5.1)	0.27	0.600
You had a major financial crisis	38 (24.)	29 (21.3)	1.56	0.211
You had problems with police and a court appearance	14 (9.7)	7 (5.1)	2.53	0.112
Something you valued was stolen or lost	12 (8.3)	8 (5.9)	0.87	0.350
Total score, mean (SD)	**1.7 (1.7)**	**2.2 (1.7)**	**5.484[a]**	**<0.001**

Note for Table 3

Following Bonferroni correction for multiple testing, cut off for statistical significance in this table is $p<0.004$.

List of Threatening Experiences (Brugha et al., 1985; Brugha and Cragg, 1990).

SD = Standard deviation

[a] Statistic used for total score was independent samples t-test.

Table 4

Binary logistic multi-variable regression models with (a) clinical diagnosis and (b) SCAN diagnosis as the dependent variables

Dependent variable	**Independent variable**	**ß**	**Standard error**	**Wald**	**p**	**Tolerance value**
Clinical diagnosis (p<0.001, for the model)	**Beck Depression Inventory total score**	**0.066**	**0.012**	**31.142**	**<0.001**	**0.930**
	List of Threatening Experiences total score	**-0.627**	**0.098**	**40.704**	**<0.001**	**0.928**
	Standardised Assessment of Personality total score	**0.189**	**0.072**	**6.947**	**0.008**	**0.910**
	Constant	-1.409	0.366	10.000	<0.001	-
SCAN diagnosis (p<0.001, for the model)	**Beck Depression Inventory total score**	**0.121**	**0.019**	**43.810**	**<0.001**	**0.933**
	List of Threatening Experiences total score	**-0.265**	**0.125**	**5.306**	**0.021**	**0.930**
	Standardised Assessment of Personality total score	0.109	0.107	1.040	0.308	0.909
	Constant	-0.956	0.468	4.177	0.041	-