Prediction of outcome in cluster B personality disorder following residential and outpatient psychosocial treatment

Dr Marco Chiesa[1], Prof Peter Fonagy[2]

[1]West London Mental Health Trust & University College London, [2]Sub-Department of Clinical Health Psychology, University College London

A number of good quality prospective studies have evaluated the effectives of different psychosocial and psychological treatment programs for borderline and other severe personality disorders (for example seeBateman & Fonagy, 1999; Clarkin *et al.*, 2001; for example seeLinehan *et al.*, 1991). The results have shown that these newly developed and refined specialist approaches have substantially improved the prognosis of personality disordered patients, and have contributed to reversing the therapeutic pessimism concerning the treatability of these conditions (Fonagy & Bateman, 2005). However, we found a dearth of reports that have attempted to identify patients' clinical characteristics predictive of treatment outcome.

As part of a large retrospective study at Chestnut Lodge, McGlashan (1985) reported that the strongest predictors of positive outcome were lower levels of affective instability, higher intelligence and shorter length of psychiatric inpatient treatment. More recently, Links (Links *et al.*, 1998) found that initial levels of co-morbid personality disorder diagnoses and borderline psychopathology were predictive of persistence of borderline psychopathology at 7-year follow-up. In another study it was found that the presence of adverse life events was associated with severity of personality disorder and poorer psychosocial functioning (Pagano et al., 2004).

At the Cassel Hospital, Richmond, UK, where the current study has taken place, the type of specialist approach developed and modified over the last five decades is mostly targeted for patients who present with a borderline personality organization (BPO) (Kernberg, 1975). These patients present with a history of impulsivity, affective instability, poor and stormy interpersonal relationships, self-harm, identity diffusion,

repeated admissions to acute general psychiatric units and inappropriate and often anti-therapeutic use of mental health and medical services. A model for a BPO spectrum that includes the corresponding cluster A and cluster B according to the DSM-IV personality disorder classification (American Psychiatric Association, 1995) has been outlined by Clarkin, Yeomans, & Kernberg (Clarkin *et al.*, 1999). The residential and follow-on outpatient settings at the Cassel Hospital offer specific medium and long-term psychosocial treatments to tackle the core symptoms and structural imbalances presented by patients with a BPO that have been unresponsive to general psychiatric interventions.

The degree of effectiveness of the treatment models at 12 and 24 months follow-up has been outlined in previous reports that compared results for three different treatment approaches to severe personality disorder. We found that although the two specialist models (long-term inpatient therapeutic community treatment and a step-down inpatient and outpatient psychosocial programme) were overall more effective than the general psychiatric treatment-as-usual control condition, the step-down approach yielded improvement in all dimensions of outcome and was more effective than the long-term inpatient model (Chiesa & Fonagy, 2000; Chiesa *et al.*, 2004).

However, we do not yet know which patients within the BPO spectrum are more responsive to this type of psychosocial approach, and which clinical characteristics may be prognostic of outcome. In this study, we selected from the original specialist treatment sample a relative homogeneous group of patients with a standardized diagnosis of three Cluster B personality disorders (borderline, histrionic and narcissistic)

and attempted to determine possible predictive factors that influenced positive and negative outcome.

Method

Participants

All patients consecutively admitted to the Cassel hospital for specialist psychosocial treatment (N=137) over a 4-year period who met inclusion (ages between 19-55, IQ > 80 and presence of at least one personality disorder) and exclusion (diagnosis of schizophrenia, psychoactive substance addiction and evidence of organic brain disorder) criteria, were considered for the study. All patients were screened using the for presence of Axis-I and Axis–II diagnosis. After considering the number of patients that did not meet criteria (3%), consent refusal (11%) and study dropouts (15%), 94 patients were followed-up through to the 24-month assessment point. 73 subjects met DSM-III-R criteria for at least one Cluster B personality disorder, and these constituted the study sample for this investigation. The majority had a primary diagnosis of borderline personality disorder (n=54, 74%), while the remaining met criteria for narcissistic (n=10, 14%) and histrionic (n=9, 12%) personality disorder.

Treatment setting

The Adult unit of the Cassel Hospital is a tertiary psychiatric facility that offers psychotherapeutic and psychosocial rehabilitation for patients suffering from personality disorders that have been unresponsive to a range of general psychiatric and outpatient psychotherapeutic interventions. Patients referred from outside the Greater London

area are admitted to a one-stage program (OSP) entailing twelve months residential treatment within the hospital therapeutic community milieu. Patients within the GLA are allocated to a mixed step down program (SDP) consisting of a period of six months as inpatient followed by two years psychotherapy and outreach nursing in the patient's own community.

The main components of psychosocial residential treatment include daily unit meetings, community meetings, structured psychosocial activities, co-responsibility in the planning of the running of the therapeutic community, individual and small group psychotherapy, psychotropic medication as required and formal assessment of progress (Hinshelwood & Skogstad, 1998).

In the outreach stage of the step-down programme, patients attend twice-weekly small group psychotherapy, once weekly meetings with the community outreach nurse, regular reviews with the Consultant psychiatrist in charge of the programme and active networking with other agencies involved with the patients' care within their community setting (Chiesa & Fonagy, 2002).

Predictors variables and outcome measures

Comprehensive demographic, diagnostic, pre-morbid and other clinical variables were collected at intake using questionnaires, standardized diagnostic inventories and interviews. Background and premorbid data included: age, gender, race, marital status, educational attainment, occupational and employment status, level of state benefits, quantity of work, accommodation status, presence of organic pathology, early loss, maltreatment, sexual abuse, trouble with the law and age onset of symptoms. Clinical

variables for which data were obtained included substance abuse, self-mutilation, attempted suicide, previous psychiatric hospitalization, length of current problems, number and length of previous psychiatric outpatient treatment, length of time on psychotropic medication, severity of symptoms, levels of social adjustment and global functioning. Intelligence quotient equivalents were obtained through the administration of the National Adult Reading Test (Nelson, 1982) and thorough Axis-I & -II diagnostic characterization of the sample was obtained using the Structured Clinical Interview for DSM-III-R (SCID-I & SCID-II) (Spitzer *et al.*, 1990).

Outcome was assessed in three main areas of functioning: severity of symptoms presentation, social adjustment and global assessment of functioning. The measures were applied at intake, six, 12 and 24 months after intake.

The *Symptom Check List-90-R* (SCL-90-R) (Derogatis, 1983) is a five-point self-report clinical rating scale. The SCL-90-R general severity index (GSI) was the total score used in the study to report changes in symptomatic distress.

The interviewer-based version of the *Social Adjustment Scale* (SAS)(Weissman, 1975) rates adjustment in the areas of work, family of origin, marriage, sexuality and social leisure on a five-point scale. A total social adjustment score is computed from the raw scores.

The *Global Assessment Scale (GAS)* (Endicott *et al.*, 1976) is an anchored rating scale (0 to 100) used for the evaluation of global outcome in accordance with patients' level of functioning assessed during the four weeks preceding the assessment.

These measures were applied by a team of research psychologists and psychiatrists independent from the clinical teams, who were trained to reliability criteria on all measures.

Using the formula provided by Jacobson and Truax (Jacobson & Truax, 1991) we calculated a cutoff point for each measure that defined the boundary of 'clinically relevant change' in each sample. Separate variables for SCL-90-R, SAS and GAS were computed, which showed the number of improved patients at the 24-month assessment point for each dimension.

Definition of improvement

Subjects were defined as improved if they achieved the stringent criteria for clinically significant change in at least one of the three main outcome measures by 24-months follow-up evaluation.

Data analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS, version 12). Chi-square test and one-way ANOVA were used to test the significance of the association of demographic, diagnostic and other clinical variables with improvement status at 24-months. After computing the standardized values of the significant continuous variables, in order to test the strength of the association, all significant variables on univariate tests were entered as covariates into a stepwise logistic regression analysis with improvement status as the dependent variable. In order to facilitate the generation of odds ratio, we computed standardized values for continuous and likert-scale variables (GSI, GAS, age and treatment length)

The identification of the presence of relatively homogeneous diagnostic groups was achieved by using two independent K-means cluster analysis for Axis-I (psychiatric syndromes) and Axis-II (personality disorder) diagnosis in the sample. Then we tested the significance of the difference in outcome within each cluster using chi-square test.

Results

Demographic and clinical features

The average age of the sample was 30 (sd=6.3), 75% were of female gender, single and achieved college educational status. However, nine out of ten subjects were unemployed and on social welfare benefits at the time of entering treatment. Over 50% experienced early environmental traumas in the form of loss of primary caregivers, sexual and physical abuse, alone or in combination. Concerning previous psychiatric utilization, half of the sample had at least one psychiatric admission in the year prior the intake assessment and 90% were in one or more type of outpatient psychiatric treatment over the same period. They met on average 4 SCID-II (prevalence) psychiatric syndromes and 3.5 personality disorders. The most common Axis-I conditions were major depression (69%), bulimia (33%), panic disorder (31%), socio-phobic disorder (30%) and obsessive-compulsive disorder (29%). Axis-II comorbidity with cluster A and C disorders included paranoid (51%), schizotypal (18%), avoidant (49%), dependent (34%), self-defeating (49%) and passive-aggressive (21%) personality disorders.

Predictor analysis

The correlational analysis of 36 clinical variables showed that age, self-mutilation, avoidant PD, dependent PD, schizotypal PD, average number of PD diagnosis, length in treatment, symptom severity (GSI) and global assessment of functioning (GAS) intake scores were significantly associated with improvement status at 24-month follow-up (Table 1).

The stepwise logistic regression revealed that the model including self-mutilation the year prior to intake, avoidant PD, intake GAS scores, age at intake and length of treatment was predictive of improvement at 24 months (χ^2=31.60, df=5, p<0.001). Cluster B patients with no previous self-mutilation (B=-1.82, SE=0.64, df=1, p=0.01), who did not have a co-morbid avoidant PD (B=-1.30, SE=0.61, df=1, p=0.03), with higher GAS intake scores (B=-0.84, SE=0.38, df=1, p=0.03), longer treatment exposure (B=0.71, SE=0.33, df=1, p=0.03) and younger age (B=-0.62, SE=0.30, df=1, p=0.04) were more likely to improve (table 2). Absence of self-mutilation and co-morbid avoidant PD improved 6 (95% CI 21.74-1.74) and 4 (95% CI 12.05-1.13) folds the chances to achieve positive outcome, respectively. Six years (1 sd) below the mean age of 30 years, 31 weeks (1 sd) more treatment from the mean of 53 weeks and 6.5 points (1 sd) above the GAS mean score of 46.5 double the chances of improvement two years after treatment intake (table 2).

Improvement rates in actively self-harming patients were significantly different in the two different treatment programs. Of the 20 patients allocated to the step-down program who had self-harmed in the year prior to being admitted, 12 (60%) were found

to be improved, while only 5 (24%) of the 21 patients with self-harm admitted to the one-stage program improved (χ^2=5.53, df=1, p=0.02). The difference in improvement rates between non-self-harming patients in the two programs was not significant (χ^2=1.52, df=1, p=0.22).

Two separate cluster analyses were carried out on Axis-I and Axis-II comorbidity patterns observed in this sample. The cluster analysis on Axis-I diagnoses identified two centers: 1) a larger group whose primary Axis-I diagnosis was major depression (n=52); and 2) a smaller more heterogeneous group with anxiety or substance misuse diagnoses (substance abuse, obsessive-compulsive disorder, panic disorder, agoraphobic disorder and sociophobic disorder) (n=21). No association with improved status at 24 months was found (χ^2=0.87, df=1, p=0.35) with the two clusters.

Two homogeneous clusters identifiable on the basis of co-morbid personality disorder diagnoses were found: 1) a large borderline and self-defeating group (B-SF) (n=44), and 2) a smaller borderline, avoidant, paranoid, dependent cluster (B-A-P-D) (n=29). A crosstabulation revealed that 30 (68%) patients in the B-SF cluster had achieved clinically significant improvement at 24-month follow-up, comparing to only 11 (38%) in the B-P-A-D cluster (figure 1). The difference was significant (χ^2=6.50, df=1, p=0.01).

Differential treatment response seems to account for this difference. There was no asymmetry in the allocation to the two treatment types (step-down and in-patient). However, whereas almost 90% (n=18) of B-SF patients allocated to the step-down model improved, only 52% (n=12) (χ^2=5.69, df=1, p=0.02) of those allocated to the in patient program did so. There was no similar difference between the improvement rates

in the two treatment arms for the B-P-A-D cluster. The improvement rates were lower but comparable for the two treatment models (46% and 31%, respectively) (χ^2=0.68, df=1, p=0.4). Thus, it seems that therapeutic advantage came especially from the step-down treatment of the self-defeating borderline group of patients.

Discussion

Previous studies of prediction in personality disorder were criticized because they were either insufficiently specific (their findings would apply to most psychiatric disorders) or yielded statistically significant results but of low clinical usefulness (Paris, 2003/ pp 70). In this study, we found four significant predictors of medium-term outcome in a cluster B personality disorder sample. Presence of self-harm and avoidant personality disorder were found to be negative predictors of clinically significant improvement, while younger age and longer stay in treatment predicted positive outcome by 24-month follow-up. Avoidant personality disorder as negative predictor was again implicated in the cluster analysis, which showed that the sub-sample with a concurrent presence of avoidant, paranoid and dependent disorders to a borderline PD diagnosis have significantly lower rates of improvement than the cluster with borderline and self-defeating characteristics.

Although age and treatment length are likely to be non-specific factors, self-harm and particularly co-morbid avoidant personality disorder negatively affecting the chances of achieving positive outcome carry potential clinical implications concerning patients' selection and treatment delivery for specialist inpatient and outpatient psychosocial programs. The finding concerning self-harm as negative predictor seems to be relative

to a differential response between the two different treatment programs. A step-down program was found to achieve significant improvement within its self-harming sample. The low improvement found in the one-stage program may point to the presence of iatrogenic factors present in long-term hospitalization, which undermine the positive and rehabilitative efforts present in the therapeutic community program. Recently, Fonagy and Bateman (2005) argued that secular trends in the expectations of treatment as usual outcomes for cluster B patients were most likely associated with the reduction in offering harmful interventions (such as long-term inpatient care) to this group rather than the wide-spread availability of evidence based new treatment methods.

A study recently completed at the University of British Columbia found that avoidant personality disorder is characterised by avoidance of any intense emotions regardless of valence (positive or negative), of novel situations and risk taking, as well as withdrawals from social situations and intense feelings of inadequacy (Taylor *et al.*, 2005). Consequently, these patients employ a range of avoidant strategies to protect them from the experience of psychic pain. These may include discontinuing a task or a treatment, withdrawal from a number of commitments, avoidance of thoughts that may produce affective instability, the adoption of a pseudo-compliant attitude, the fading into the background in group situations. These features make the engagement with, and response to, psychotherapeutic treatment much more challenging. Psychoanalytically-informed inpatient treatment aims to enable the patients to be more in touch with their own range of emotions as a precondition to generate greater integration of split off object representations with their affect-laden accompaniment in order to achieve greater freedom and durable psychic change. This is exactly what the individual with avoidant

personality disorder fears the most, given their strong negative reactions to experiencing intense emotions. In addition, the intensity of conditions within the therapeutic community setting with its emphasis on sharing, externalising of emotional states, continuous enquiry about one's own functioning pose a serious challenge to avoidant patients. They may thus employ subtle defensive operations by seemingly complying with the milieu demands, becoming inconspicuous or taking on a pseudo-professional role by becoming competent and helpful to other patients in distress. This chameleon-like attitude of learning rapidly to adapt to the practical aspects of systems described by several authors in some personality disorder is aimed at avoiding anxiety, conflict and psychological pain, but strongly militates against durable improvement (Fonagy & Target, 2000).

Differences in improvement rates between the two treatment programs between the two personality disorder clusters and in the self-harming sub-group emerge from the findings. The step-down program seems to be more successful in treating patients meeting criteria for borderline personality disorder with self-defeating features than the one-stage model (86% versus 52% improvement rate, respectively), while no significant difference was found in the borderline, avoidant, paranoid and dependent cluster.

Patients in the BPO spectrum are individuals with very severe attachment problems who may react negatively to inpatient care (Fonagy *et al.*, 1996; Gunderson, 1996). However, in our sample BPO patients with self-defeating features responded positively to a phased program in which the overall treatment intensity is modulated, allowing for a more gradual process of individuation, meeting their needs for object constancy and enhancing the possibility of modifying a disorganized attachment to

others. For the paranoid, avoidant type of cluster B patients improvement rates are relatively lower, even though the 86% improvement rate achieved by the B-SD group is hard to match. It is likely that patients in the BAPD cluster might present with relatively more intractable problems that are more enduring and harder to shift in treatment (Skodol *et al.*, 2005) and thus the impact of either psychosocial programs is likely to be more limited than in B-SD patients.

The step-down program's greater success in treating self-harming patients may be a reflection of the greater containing function of a phased long-term program that has inbuilt a shorter inpatient stay. This may protect patients from regressive phenomena derived from log-term hospitalization. The intensive outpatient psychotherapeutic continuation program allows a relatively seamless transition from hospital to community life and provides patients with a feeling of ongoing containment of their disturbance and a space for working through conflicts and difficulties concerned with living in their own communities (Chiesa & Fonagy, 2002). In contrast, long-term inpatient stay with no follow-up treatment enhances the likelihood of iatrogenic reactions, such as uncontrolled regression and acute acting-out, while unable to address in ongoing psychological work the deep sense of abandonment and rejection at discharge characteristic of BPO (Gunderson, 1996).

The relatively low sample size for a regression analysis is a limitation to be borne in mind when considering the results of the study. It is possible that outliers in the covariates may have affected their significance as predictors in the logistic regression, and a larger sample of BPO may be needed to ensure greater reliability of results. In addition, the negative predictor role played by avoidant personality disorder needs

confirmation as another study has indicated that avoidant features are associated with positive outcome (Vermote, 2005) in a different sample of personality disordered patients treated in a similar inpatient milieu.

References

American Psychiatric Association. (1995). *Diagnostic and Statistical Manual for Mental Disorders (DSM-IV)* (IV ed.). Washington: American Psychiatric Press.

Bateman, A., & Fonagy, P. (1999). Effectiveness of partial hospitalization in the treatment of borderline personality disorder: A randomized controlled trial. *American Journal of Psychiatry, 156*, 1563-1569.

Chiesa, M., & Fonagy, P. (2000). Cassel personality disorder study: methodology and treatment effects. *British Journal of Psychiatry, 176*, 485-491.

Chiesa, M., & Fonagy, P. (2002). From the therapeutic community to the community: A preliminary evaluation of a psychosocial outpatient service for severe personality disorders. *Therapeutic Communities, 23*, 247-259.

Chiesa, M., Fonagy, P., Holmes, J., & Drahorad, C. (2004). Residential versus community treatment of personality disorder: A comparative study of three treatment programs. *American Journal of Psychiatry, 161*, 1463-1470.

Clarkin, J. F., Foelsch, P. A., Levy, K. N., Hull, J. W., Delaney, J. C., & Kernberg, O. F. (2001). The development of a psychodynamic treatment for patients with borderline personality disorder: A preliminary study of behavioral change. *Journal of Personality Disorders, 15*, 487-495.

Clarkin, J. F., Yeomans, F. E., & Kernberg, O. (1999). *Psychotherapy for Borderline Personality*. New York: John Wiley & Sons.

Derogatis, L. R. (1983). *SCL-90-R. Administration, scoring and procedures. Manual-II*. Towson (MD): Clinical Psychometric Research.

Endicott, J., Spitzer, R. L., Fleiss, J. L., & Cohen, J. (1976). The Global Assessment Scale. *Archives of General Psychiatry, 33*, 766-771.

Fonagy, P., & Bateman, A. (2005). Progress in the treatment of borderline personality disorder. *British Journal of Psychiatry, in press*.

Fonagy, P., Leigh, T., Steele, M., Steele, H., Kennedy, R., Mattoon, G., et al. (1996). The relationship of attachment status, psychiatric classification, and response to psychotherapy. *Journal of Consulting and Clinical Psychology*.

Fonagy, P., & Target, M. (2000). Playing with reality III: The persistence of dual psychic reality in borderline patients. *International Journal of Psychoanalysis, 81*, 853-874.

Gunderson, J. G. (1996). The borderline patient intolerance of aloness: Insecure attachment and therapist availability. *American Journal of Psychiatry, 153*, 752-758.

Hinshelwood, R. D., & Skogstad, W. (1998). The hospital in the mind: In-patient psychotherapy at the Cassel Hospital. In J. Pestalozzi, S. Frisch, R. D. Hinshelwood & D. Houzel (Eds.), *Psychoanalytic Psychotherapy in Institutional Settings* (pp. 59-73). London: Karnac Books.

Jacobson, N., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology, 59*, 12-19.

Kernberg, O. F. (1975). *Borderline Conditions and Pathological Narcissism*. New York: Aronson.

Linehan, M. M., Armstrong, H. E., Suarez, A., Allmon, D., & Heard, H. L. (1991). Cognitive-behavioral treatment of chronically parasuicidal borderline patients. *Archives of General Psychiatry, 48*, 1060-1064.

Links, P. S., Heslegrave, R., & van Reekum, R. (1998). Prospective follow-up study of borderline personality disorder: Prognosis, prediction outcome, and Axis II comorbidity. *Canadian Journal of Psychiatry, 43*, 265-270.

McGlashan, T. H. (1985). The prediction of outcome in borderline personality disorders. In T. H. McGlashan (Ed.), *The Borderline: Current Empirical Research*. Washington DC: American Psychiatric Press.

Nelson, H. E. (1982). *National Adult Reading Test (NART)- Test Manual*. Windsor: NFER-Nelson.

Pagano, M. E., Skodol, A. E., Stout, R. L., Shea, M. T., Yen, S., Grilo, C. M., et al. (2004). Stressful life events as predictors of functioning: Findings from the Collaborative Longitudinal Personality Disorders Study. *Acta Psychiatrica Scandinavica, 110*(6), 421-429.

Paris, J. (2003). *Personality Disorders Over Time: Precursors, Course and Outcome*. Washington, DC: American Psychiatric Publishing.

Skodol, A. E., Pagano, M. E., Bender, D. S., Shea, M. T., Gunderson, J. G., Yen, S., et al. (2005). Stability of functional impairment in patients with schizotypal, borderline, avoidant, or obsessive-compulsive personality disorder over two years. *Psychological Medicine, 35*(3), 443-451.

Spitzer, R. L., Williams, J., Gibbon, M., & First, M. (1990). *Structured Clinical Interview for DSM-III-R*. Washington DC: American Psychiatric Press.

Taylor, C., Laposa, J., & Alden, L. (2005). Is avoidant personality disorder more than just social avoidance. *Journal of Personality Disorders, 18*, 571-594.

Vermote, R. (2005). *Psychoanalytically informed hospitalisation-based treatment of personality disorder. A process-outcome study.* Catholic University of Leuven, Brussels.

Weissman, M. M. (1975). The assessment of social adjustment. *Archives of General Psychiatry, 32*, 357-365.

Table 1

Variables significantly associated with outcome in the PD Cluster B sample

Variable	Improved N=41	Not improved N=32	Test of significance
Age (years)			
mean (sd)	28.98 (5.92)	32.13 (6.50)	F=4.67 (p=0.034)
Avoidant PD			
present n (%)	14 (38.9)	22 (61.1)	χ^2=8.61 (p=0.003)
absent n (%)	27 (73.0)	10 (27.0)	
Dependent PD			
present n (%)	10 (40.0)	15 (60.0)	χ^2=4.04 (p=0.045)
absent n (%)	31 (64.6)	17 (35.4)	
Schizotypal PD			
present n (%)	4 (30.8)	9 (69.2)	χ^2=8.61 (p=0.042)
absent n (%)	37 (61.7)	23 (38.3)	
Self-mutilation			
present n (%)	17 (41.5)	24 (58.5)	χ^2=8.21 (p=0.004)
absent n (%)	24 (75.0)	8 (25.0)	
SCL-90-R GSI			
mean (sd)	1.80 (0.73)	2.23 (0.63)	F=7.61 (p=0.007)
Global Assessment Scale			
mean (sd)	48.00 (6.33)	44.47 (5.97)	F=5.88 (p=0.018)
Tot number PD diagnosis			
mean (sd)	3.29 (1.66)	4.16 (1.39)	F=5.58 (p=0.021)

Treatment length (weeks)			
mean (sd)	62.98 (31.77)	43.70 (29.53)	F=8.41 (p=0.003)

Table 2

Variables selected in the significant model as strongest predictors of outcome by the logistic regression in the cluster b sample (n=73)

Variable	B (SE)	df	Significance	Odds ratio (95% CI) for improvement
Self-mutilation	-1.82 (0.65)	1	p=0.005	0.2 (0.1-0.6)
Avoidant personality disorder	-1.30 (0.61)	1	p=0.031	0.3 (0.1-0.9)
Zage*	-0.62 (0.30)	1	p=0.039	0.5 (0.3-1.0)
Ztreatment length*	0.71 (0.33)	1	p=0.032	2.0 (1.1-3.9)
ZGAS scores*	0.84 (0.38)	1	p=0.026	2.3 (1.1-4.8)

* Standardized values variables

Table 3

Differences in rates of clinical improvement between the step-down program and the long-term in-patient program in the borderline and self-defeating (B-SF) and borderline, avoidant, paranoid and dependent (B-A-P-D) personality disorder diagnostic clusters, and in the self-harming sub-group

Variable	Improved	Not improved	Test of
	n (%)	n (%)	significance
B-SF			
Step-down program	18 (85.7)	3 (14.3)	χ^2=5.69 (p=0.017)
Long-term IP program	12 (52.2)	11 (47.8)	
B-A-P-D			
Step-down program	5 (31.3)	11 (68.8)	χ^2=0.68 (p=0.411)
Long-term IP program	6 (46.2)	7 (53.8)	
Self-harming Group			
Step-down program	12 (60.0)	8 (40.0)	χ^2=5.53 (p=0.02)
Long-term IP program	5 (24.0)		

Figure 1

Rates of clinically significant improvement in the borderline-self-defeating (B-SF) and borderline-avoidant-paranoid-dependent personality disorder clusters