Running head: Personality Disorder Publications

Publications Trends in Individual DSM Personality Disorders: 1971 – 2015.

Mark J. Boschen & Judith C. Warner

School of Psychology, Griffith University

Revision 2

Monday, 1 December 2008

Abstract

The growth in personality disorder research has been documented by previous authors up to 1995. We sought to extend this by examining publications rates for individual DSM personality disorders over the period 1971-2005, and make projections to 2015 based on this data. We found that personality disorder research has grown in absolute terms, and as a proportion of overall psychopathology research. Research output is dominated by borderline personality disorder, with strong publication rates in other conditions such as antisocial and schizotypal personality disorders. In contrast, several personality disorders such as schizoid and paranoid personality disorder have failed to attract research interest. Based on current projections, there was expected to be no research output in 2015 for schizoid personality disorder. We found that the rate of publications for personality disorders was not influenced by the publication of the last three revisions of the DSM diagnostic criteria. Several potential explanations such as the difficulty in conducting certain types of personality disorder research, and the validity of the current DSM diagnostic taxonomy are discussed.

Publication Trends in Individual DSM Personality Disorders: 1971 - 2015.

Since the 1960s, personality disorder research has grown strongly, encouraged by isolation of personality disorders on Axis II of the DSM-III (American Psychiatric Association, 1980). The field continues to generate considerable research output, with the development of specific journals such as the *Journal of Personality Disorders* focusing on the area. The aim of this article is to examine broad trends in research output in the area of personality disorders, building on the work of previous authors. Current trends are used to make predictions about the likely future course of research output.

Previous authors have highlighted the importance of examining trends in publication rates as a method of gauging the interest in a research area (e.g., Boschen, 2008a, 2008b). This "research on research" (Pincus, Henderson, Blackwood, & Dial, 1993, p. 135) can be used to augment information from other sources such as research funding and academic activity, to help ascertain trends over time in research interest and productivity. It allows researchers to identify which areas within a research domain are "hot subfields" (Blashfield & Intoccia, 2000, p. 472), and which are attracting less research interest. Examination of publication rates has been utilised as a meta-research tool in fields such as clinical medicine (e.g., Fava, Guidi, & Sonino, 2004), addiction (e.g., Zurián, Aleixandre, & Castellano, 2004), personality disorders (Mendlowicz, Braga, Cabizuca, Land, & Figueira, 2006), and other psychological disorders (e.g., Boschen, 2008a, 2008b; Cox, Wessel, Norton, & Swinson, 1994; Cox, Wessel, Norton, Swinson, & Direnfeld, 1995). Some authors have used the health of a research literature to argue for the removal of certain diagnostic categories from diagnostic taxonomies (Blashfield, Sprock, & Fuller, 1990).

There is a paucity of research examining the rate of publications in the personality disorder literature. Despite this, there is some evidence that this literature showed ongoing expansion, at least until the mid-1990s. Pincus et al. (1993) examined the publication trends in two leading psychiatric journals, comparing publications across three different two-year periods (1969-1970, 1979-1980 and 1989-1990). This research indicated that while personalty disorders made up only 1.5% of published research in the journals for 1969-1970, this had grown significantly to 7.2% by 1989-1990. In absolute terms, previous authors have asserted that the personality disorders literature has doubled in size every 7 years (Blashfield & McElroy, 1987), or more recently every 20-25 years (Blashfield & Intoccia, 2000).

Despite overall growth in the personality disorder literature, there is evidence to suggest that this development is heterogenous, with some disorders appearing to show declining research interest. Blashfield and Intoccia (2000) examined publication rates in personality disorders between 1966 and 1995, and found that while the overall trend was for strong growth, several diagnoses (dependent, histrionic, obsessive-compulsive, paranoid and passive-aggressive) showed flat or declining publication rates. Over the period 1973-2001, the same declining research interest has been observed for avoidant personality disorder (Mendlowicz et al., 2006). It is also apparent from some earlier works that "hot subfields" may change over time, within the broader trends in the personality disorder literature. For example, there appears to have been a shift between 1975 and 1985, in which borderline personality disorder overtook antisocial personality disorder as the diagnosis generating most research interest (Blashfield & McElroy, 1987).

The most comprehensive analysis of trends in personality disorder publication rates was conducted by Blashfield and Intoccia (2000). Using the Medline database

of medical literature, Blashfield and Intoccia tested the hypothesis that the creation of DSM-III's Axis II, would act as an impetus to further personality disorder research. These researchers found that personality disorders as a general topic had continued to expand at roughly the same rate as other medical research fields. Contrary to expectations, and despite this expansion in research, acceleration in publication rates appeared to decline post-DSM-III. The authors also highlighted several personality disorders that had either very small literatures, or declining publication rates. It should be noted, however, that when a similar analysis was done using PsycInfo as the source database, there was evidence for a growth in personality disorder research following the introduction of Axis II (von Knorring, Ekselius, & Alton, 2001). It is difficult to reconcile these two results without recourse to examining both source databases in combination, to gather a much larger representative sample of the literature (Blashfield, 2001; McDonald, Taylor, & Adams, 1999).

This article aims to expand on the work of previous authors in several important ways. Firstly, it uses a combination of both Medline and PsycInfo source databases as a starting point for the search. This is in line with previous work which has highlighted the limited coverage of each individual database (McDonald et al., 1999; Pincus, 2001), and discrepant findings when either is used alone (Blashfield, 2001; Blashfield & Wells, 1996). Secondly, it examines personality disorder research up to 2005, expanding the work of Blashfield and Intoccia (2000) by ten years. Thirdly, it attempts to extrapolate from current trends to predict the likely future course of personality disorder research to 2015.

Several *a priori* hypotheses were generated on the basis of a review of previous literature. Firstly, it was predicted that personality disorder research would show continued growth over the review period, supporting the expansion documented

by earlier authors. Secondly, it was hypothesised that the introduction of DSM-III would not be associated with any increased publication output, once the overall trend over time was taken into account. Thirdly, it was posited that there would be heterogenous results across different personality disorders when examining the longitudinal impact of the introduction of Axis II in 1980. Fourthly, it was hypothesized that the same personality disorders which showed strong research interest in the mid-1990s would continue to demonstrate high levels of research output, while those that had begun to decline would have continued to do so over the review period up to 2005.

Method

Procedure

The method was based closely on similar previous research examining the trends in publication rates in other mental disorders (Boschen, 2008a, 2008b; Mendlowicz et al., 2006). The two largest databases of English-language psychological/psychiatric literature, Medline and PsycInfo, were used for the searches. These two databases are known to cover at least 85% of the indexed psychiatric literature (McDonald et al., 1999). Search terms were chosen with the aim of identifying articles that had a focus on specific personality disorders. Each search term included "PERSONALITY DISORDER AND" followed by the name of the disorder (e.g., PERSONALITY DISORDER AND PARANOID). For obsessive compulsive personality disorder the terms "OBSESSI* OR COMPULSI*" were used. For antisocial personality disorder, the terms "ANTI-SOCIAL OR ANTISOCIAL" were used. Searches were conducted on 15 April, 2007, with the restriction that the search terms were required to appear in the title of the article, and that the work must have been published between 1971 and 2005, inclusive. Books, book chapters and journal articles were

included. Comments, dissertations, theses, and letters to the editor were excluded.

Duplicate and non-relevant works were also removed from the final database. The details of the search results, and the number of publications removed, are documented in Table 1.

In calculating the total number of personality disorder publications, the combination of the publications from all individual personality disorders was used (after removing duplicates). This is in line with the method used by Blashfield and Intoccia (2000).

Results

Overall Growth in Personality Disorder Research

Figure 1 shows the overall growth in personality disorder publications from 1971 to 2005. The introduction of each new edition of the DSM is indicated. Our results demonstrated the same continued growth documented by earlier authors. Year of publication accounted for 91% of the variance in the number of publications per year in a linear regression (r = .96, p < .001).

Impact of the Introduction of Axis II in DSM-III

To examine the impact of introduction of the DSM-III diagnostic system, a hierarchical multiple regression was conducted, using time period (pre-DSM-III vs post-DSM-III) and year of publication as predictors, and publication rate as the dependent variable. For each analysis, publication year was entered into the analysis, followed by the nominal variable indicating whether the DSM-III had been published by that year. This analysis was designed to check whether the introduction of the DSM-III multi-axial diagnostic system led to an increased research interest, while allowing for the linear trend of increasing publication over time. Tolerance values were checked as part of each regression, demonstrating that publication year and the

nominal variable were not collinear. The introduction of DSM-III did not significantly increase research output, once the linear trend of year of publication was taken into account (β = -.06, t = -0.75, df = 32, p > .05, tolerance = .39). The same results were found when the other editions of DSM were used as the cutting point, with no increase as a result of the DSM-III-R (β = .10, t = 0.99, df = 32, p > .05, tolerance = .25) or DSM-IV (β = -.15, t = -1.73, df = 32, p > .05, tolerance = .35). *Hot Subfields and Diagnoses with Low Research Output*

The research outputs for individual personality disorders are presented in Figure 2. There are clear differences in both the accumulated literature size, and the publication rates of the different personality disorders. Since 1980, the obvious "hot subfield" has been borderline personality disorder, accounting for more publications than all the other personality disorders combined. Publication rates have risen steadily over the review period.

Several other personality disorders have also shown ongoing growth in publication rates. Antisocial personality disorder appears to be the second most widely researched condition in 2001-2005, after a period of steady growth since 1971, and dramatic growth since 1991. Similarly, schizotypal and obsessive-compulsive personality disorder research had also begun to grow by the early 1980s, and continued this growth up to 2005, becoming the third and fourth most researched personality disorders, respectively. A similar, though less pronounced growth was seen for avoidant personality disorder.

Narcissistic personality disorder research appears to have enjoyed a vogue in the late 1980s, but has declined steadily since this time. In the period 1986-1990, it was second only to borderline personality in terms of research product. By 2001-

2005 however, it had fallen behind emerging research into schizotypal, antisocial and obsessive compulsive personality disorders.

Several personality disorders appear to have failed to accumulate significant research interest over the 35-year review period. Dependent, histrionic and paranoid personality disorders each peaked in the period 1991-1995, and have declined in research output since this time. In each case, there were less than 50 articles found in our search for the entire 35-year period. Schizoid personality disorder showed a similar pattern, peaking a little earlier in 1986-1990, but still amassing a total of only 41 publications in 35 years.

Future Projections: 2015

Using linear regressions, we attempted to predict the number of publications for each of the personality disorders, on the basis of publication rates from 1971-2005. Table 2 shows that the overall literature and some key diagnoses such as borderline, antisocial and schizotypal personality disorders are likely to show continued growth. Other diagnoses such as dependent, histrionic, obsessivecompulsive and paranoid personality disorder are not projected to grow substantially. Schizoid personality disorder is expected to cease to attract research interest, based on publications to 2005.

Discussion

The current research aimed to examine trends in personality disorder publications of the period 1971-2005, and to extrapolate from these to make projections about the likely publication rates in 2015. Our first hypothesis was that personality disorder research would show strong growth over the review period, in line with earlier work by Blashfield and Intoccia (2000). This hypothesis was supported, with a strong growth projected to continue to 2015. While Blashfield and Intoccia (2000) argued for an exponential curve, we found that a linear regression curve showed exceptional fit, accounting for over 91% of the observed variance in publication rates.

Our second hypothesis concerned the impact of the DSM-III's introduction of Axis II as a way of highlighting the personality disorders to clinicians and researchers. Our analyses supported those by Blashfield and Intoccia (2000), showing no impact of the introduction of the DSM-III once the general growth trend was taken into account. At first glance, this lack of impact is discrepant with the results reported by von Knorring et al. (2001), who argued that there had been a significant increase in personality disorder research as a result of the DSM-III. These researchers, however, drew their conclusions on the basis of a simple non-parametric comparison between publications rates from 1975-1979 and 1991-1995. While this demonstrates that there was a growth in publication between these two periods, it did not take into account the existing trend for publications to increase regardless of DSM publication.

Our third and fourth hypotheses concerned the publication rates of individual personality disorders. We proposed that there would be considerable heterogeneity in publication rates across the different personality disorders. Furthermore, we predicted that trends observed in earlier studies would be replicated when data from the last decade was considered. As observed by previous authors, we found that there was continuing growth in the amount of research into several personality disorders: borderline, antisocial and schizotypal. In contrast with Blashfield and Intoccia (2000), however, we also observed that ongoing growth had emerged for obsessivecompulsive and avoidant personality disorder literature. Observations by Blashfield and Intoccia that several personality disorders had failed to stimulate research interest were confirmed, with stagnation seen in narcissistic, dependent, histrionic, paranoid

and schizoid personality disorders. When the current trends were projected to 2015, schizoid personality disorder research was expected to cease completely.

There are several possible explanations for the current findings. One potential reason for our results is the difference in clinical presentation rates for the different personality disorders. The symptomatology of some diagnoses such as schizoid and avoidant personality disorder, suggests that these individuals may be less likely to present to clinicians or researchers. On the other hand, some disorders such as antisocial and borderline personality disorder are often associated with behaviours that would bring an individual into contact with treatment services (e.g., criminal acts or self-harm behaviours). When reductions in interpersonal contact are part of the personality pathology, it may follow that empirical research into the disorder would be challenging, and that this may lead to lower publication rates. Where a disorder brings a person into contact with treatment (and also to the attention of researchers), this could be expected to increase research interest and output. Despite the intuitive appeal of such a hypothesis, it is difficult to reconcile with empirical data. Previous research has suggested that even personality pathologies such as anxious/avoidant and schizoid personality disorders are seen in general practice (e.g., Moran, Jenkins, Tylee, Blizard, & Mann, 2000). As such, it is difficult to assert that the lack of research output into these conditions is a simple reflection of their not presenting to clinical services.

A second potential explanation is that personality pathology is considered a particularly challenging area of psychotherapy. This, however, does not explain the increase in research product for borderline and antisocial personality disorders, which are often considered particularly difficult to treat. The increase observed in borderline personality disorder publication may be in part due to advances in treatment

approaches for this condition. Treatments such as Dialectical Behaviour Therapy (Linehan, 1993) have considerable evidence for their effectiveness, which has in turn stimulated a large amount of further research. Our results tentatively support these interpretations.

A third potential explanation for the paucity of research output in some conditions is their similarity to other Axis I and Axis II disorders. Differential diagnoses between personality disorders such as avoidant personality disorder versus social anxiety disorder, or paranoid personality disorder versus a psychotic illness can be challenging. Where there is such overlap, research may be conducted primarily into the Axis I condition, as is seen in the comparisons of publication rates for social anxiety disorder and avoidant personality disorder (Mendlowicz et al., 2006). The same may be true of the overlap between individual DSM Axis II conditions, with overlap making separation of distinct diagnoses difficult. When Axis II conditions are difficult to differentiate, clinicians may also favour use of one diagnosis, inadvertently biasing publication rates. Biases in diagnosis of personality disorders such as borderline personality disorder have been documented previously (e.g., Bjorklund, 2006), which may further complicate interpretation of our findings. For example, overdiagnosis of borderline personality disorder, and underdiagnosis of Cluster C disorders may inadvertently contributed to increased research output for borderline personality disorder, and more limited research output in the Cluster C conditions.

The rapid expansion of the number of diagnoses over recent editions of the DSM has been documented previously (e.g., Beutler & Malik, 2002; or more humorously by Dunn, 2003). Our results may provide very tentative support for a call to rationalise the number of personality disorder diagnoses. Although a lack of

research output cannot be seen as strong evidence of a lack of validity of some personality disorders (Blashfield & Intoccia, 2000), where research output is low, one explanation may be that current diagnostic systems may not be accurate representations of clinical reality. Such a hypothesis cannot be assessed using our current method, but would be worthy of evaluation in future research.

The findings presented here are offered as a representative sample of the research into personality disorders. Nevertheless, there are several methodological limitations that must be acknowledged. Firstly, it must be remembered that the results presented here are not based on a complete compilation of personality disorder articles, but rather a robust representative sample of the available literature. PsycInfo and Medline cover at least 85% of the psychiatric literature indexed in digital search repositories (McDonald et al., 1999), but are not exhaustive. Furthermore, our search terms were restricted to those used by the DSM system, and may have failed to uncover articles which used alternative terminology (e.g., terms such as psychopathic, sociopathic, hysterical, anancastic, and anaclitic personality).

The current study used 1980 as the cut-off date for the introduction of the new multiaxial diagnostic system. Despite the publication of the new Axis II system in this year, it is likely that it would take several years for this change in diagnostic conceptualisation and nomenclature to filter through into the research literature. Although this may argue against 1980 being used as a valid date for the impact of DSM-III on personality disorder research, our use of 1987 (DSM-III-R) and 1994 (DSM-IV) did not change our findings.

The reader should also be sure to consider our research in the context of a growing move towards dimensional models of personality pathology, rather than the categorical approach taken by earlier research (e.g., First et al., 2002; Haslam, 2003; Trull & Durrett, 2005; Widiger, 2005). The method used in the current study was to identify personality disorder publications as specified in the current and other recent editions of the DSM diagnostic system, and as such is based on a categorical model of personality disorder. It would also be a worthwhile exercise for future research to examine trends in whether publications define personalty disorder according to dimensional or categorical systems.

Conclusion

Notwithstanding the limitations outlined earlier, the current results are presented as an indication of the ongoing trend in publication rates of the various personality disorders. We believe that there are several important points that arise out of this research: Firstly, although research into several of the personality disorders has continued to grow, there are several which have failed to attract considerable research interest. There are many potential explanations for the small literatures of several disorders, and ongoing dialogue between researchers and practitioners should be encouraged. Secondly, the separation of Axis I and II in recent issues of the DSM has not served to increase research attention to many of the personality disorders. Finally, the move towards dimensional models of personality disorders may suggest an avenue for future research, examining publication trends from this perspective in addition to the categorical approach utilised in our study.

References

- American Psychiatric Association (1980). Diagnostic and Statistical Manual of Mental Disorders (3rd ed.). Washington DC: Author.
- Beutler, L.E., & Malik, M.L. (2002). Rethinking the DSM: A psychological perspective. Washington DC: American Psychological Association.
- Blashfield, R.K. (2001). Dr Blashfield replies. American Journal of Psychiatry, 158, 1168-1169.
- Blashfield, R.K., & Intoccia, V. (2000). Growth of the literature on the topic of personality disorders. American Journal of Psychiatry, 157, 472-473.
- Blashfield, R.K., & McElroy, R.A. (1987). The 1985 journal literature on the personality disorders. Comprehensive Psychiatry, 28, 536-546.
- Blashfield, R.K., Sprock, J., & Fuller, A.K. (1990). Suggested guidelines for including or excluding categories in the DSM-IV. Comprehensive Psychiatry, *31*, 15-19.
- Blashfield, R.K., & Wells, L. (1996). Computerized searches of the 1985 personality disorders literature. Journal of Personality Disorders, 10, 282-295.
- Boschen, M.J. (2008a). The growth of PTSD in anxiety disorder research. *Psychiatry* Research, 158, 262-264.
- Boschen, M.J. (2008b). Publication trends in individual anxiety disorders: 1980-2015. Journal of Anxiety Disorders, 22, 570-575.
- Bjorklund, P. (2006). No man's land: Gender bias and social constructivism in the diagnosis of borderline personality disorder. Issues in Mental Health Nursing, 27, 3-23.

- Cox, B.J., Wessel, I., Norton, G.R., & Swinson, R.P. (1994). Citation patterns in recent anxiety disorders research. American Journal of Psychiatry, 151, 933-936.
- Cox, B.J., Wessel, I., Norton, G.R., Swinson, R.P., & Direnfeld, D.M. (1995). Publication trends in anxiety disorders research: 1990-1992. Journal of Anxiety Disorders, 9, 531-538.
- Dunn, J. (2003). Some fanciful predictions for DSM400. Australasian Psychiatry, *11*, 471-472.
- Fava, G.A., Guidi, J., & Sonino, N. (2004). How citation analysis can monitor the progress of research in clinical medicine. Psychotherapy and Psychosomatics, *73*, 331-333.
- First, M.B., Bell, C.B., Cuthbert, B., Krystal, J.H., Malison, R., Offord, D.R., et al. (2002). Personality disorders and relational disorders: A research agenda for addressing crucial gaps in DSM. In D.J. Kupfer, M.B. First, & D.A. Regier (Eds.), A Research Agenda for DSM-V (pp. 123-200). Washington: American Psychiatric Press.
- Haslam, N. (2003). Categorical versus dimensional models of mental disorder: The taxometric evidence. Australian and New Zealand Journal of Psychiatry, 37, 696-704.
- Linehan, M.M. (1993). Cognitive behavioural treatment of borderline personality disorder. New York: Guilford Press.
- McDonald, S., Taylor, L., & Adams, C. (1999). Searching the right database. A comparison of four databases for psychiatric journals. Health Libraries Review, 16, 151-156.

- Mendlowicz, M.V., Braga, R.J., Cabizuca, M., Land, M.G., & Figueira, I.L. (2006). A comparison of publication trends on avoidant personality disorder and social phobia. Psychiatry Research, 144, 205-109.
- Moran, P., Jenkins, R., Tylee, A., Blizard, R., & Mann, A. (2000). The prevalence of personality disorder among UK primary care attendees. Acta Psychiatrica Scandinavica, 102, 52-57.
- Pincus, H.A., Henderson, B., Blackwood, D., & Dial, T. (1993). Trends in research in two general psychiatric journals in 1969-1990: Research on research. American Journal of Psychiatry, 150, 135-142.
- Pincus, H.A. (2001). Personality disorders in the literature. American Journal of Psychaitry, 158, 657.
- Trull, T.J., & Durrett, C.A. (2005). Categorical and dimensional models of personality disorder. Annual Review of Clinical Psychology, 1, 355-380.
- von Knorring, L., Ekselius, L., & Alton, V. (2001). Growth of interest in personality disorders. American Journal of Psychiatry, 158, 1168.
- Widiger, T.A. (2005). A dimensional model of personality disorders. Current *Opinion in Psychiatry, 18,* 41-43.
- Zurián, J.C.V., Aleixandre, R., & Castellano, M. (2004). Citation count analysis in Addiction (2001). Addiction, 98, 387-388.

Table 1 Database Filtering Results and Final Totals

	Medline	PsycInfo	Combined	Duplicates	False-Positives*	TOTAL
Antisocial	408	327	735	-327	-94	314
Avoidant	130	97	227	-97	-34	96
Borderline	1160	1591	2751	-511	-584	1656
Dependent	43	77	120	-25	-52	43
Histrionic	19	55	74	-8	-22	44
Narcissistic	72	182	254	-46	-37	171
Obsessive-Compulsive	61	105	166	-26	-36	104
Paranoid	9	25	34	-6	-8	20
Schizoid	56	36	92	-41	-10	41
Schizotypal	261	190	451	-190	-75	186

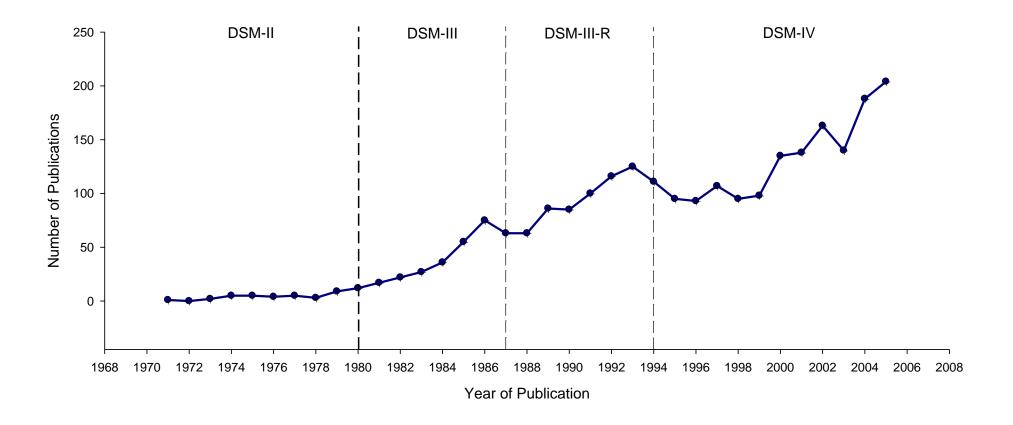
^{*} Articles that did not meet inclusion criteria.

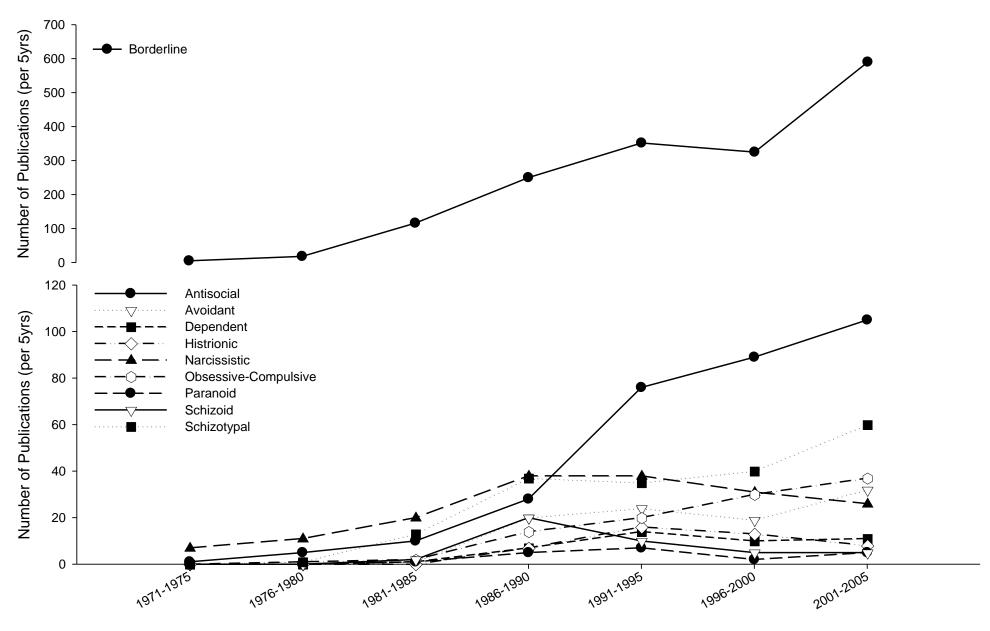
Table 2 Predicting Personality Disorder Publication to 2015

	Years Used	r	r^2	Adj. r^2	В	Const.	Significance	2015 Projection
Antisocial	1971 – 2005	.92	.84	.84	0.77	-1511.82	F(1,33) = 172.45, p < .001	40 per year
Avoidant	1971 – 2005	.72	.52	.51	0.22	-428.27	F(1,33) = 35.76, p < .001	15 per year
Borderline	1971 – 2005	.93	.87	.86	3.74	-7384.02	F(1,33) = 215.40, p < .001	152 per year
Dependent	1971 – 2005	.51	.26	.24	0.09	-179.20	F(1,33) = 11.72, p < .005	2 per year
Histrionic	1971 – 2005	.61	.37	.35	0.09	-175.27	F(1,33) = 19.14, p < .001	6 per year
Narcissistic	1971 – 2005	.51	.26	.24	0.17	-329.23	F(1,33) = 11.69, p < .005	13 per year
Obs-Compulsive	1971 – 2005	.83	.69	.68	0.26	-517.17	F(1,33) = 73.62, p < .001	7 per year
Paranoid	1971 - 2005	.41	.19	.14	0.04	-72.38	F(1,33) = 6.68, p < .05	8 per year
Schizoid	1971 – 2005	.25	.06	.03	0.04	-81.24	F(1,33) = 2.14, p > .05	Nil
Schizotypal	1971 - 2005	.82	.66	.65	0.40	-780.42	F(1,33) = 65.29, p < .001	26 per year
Overall	1971 – 2005	.96	.91	.91	5.46	-10834.10	F(1,33) = 343.61, p < .001	168 per year

Figure Captions

- Figure 1. Combined Publication Rates for DSM Personality Disorders (1971-2005).
- Figure 2. Publication Rates for Separate Personality Disorders (1971-2005).





Year of Publication