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Publication Trends in Individual Anxiety Disorders: 1980 – 2015.

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Abstract

The aim of the current study was to examine trends in anxiety disorder publication over the past 25 years, and to project likely future trends from these. Medline searches were used to find a representative sample of the total number of journal articles published each year from 1980-2005 that were focused on each particular anxiety disorder. Results demonstrated that anxiety disorder research continued to grow over the 25-year period examined. Growth was particularly strong for OCD and PTSD, with strong research growth in panic disorder also in the 1980s. Only specific phobia and agoraphobia did not grow in research output over the review period. Growth is projected to continue over the next ten years.

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Anxiety disorder research has enjoyed a healthy tradition over past decades, with major advances in the conceptualisation and treatment of all of the anxiety disorders (e.g. Clark, 1986; Salkovskis, 1985, 1999; Rapee & Heimberg, 1997; Boschen, 2007). Diagnosis, as well as the relationship with mood disorders has been revised (e.g. American Psychiatric Association, 1987, 1994; Mineka, Watson & Clark, 1998), and new academic journals such as the *Journal of Anxiety Disorders* have emerged to deal specifically with the expanding field.

One method of determining the health of a research field is to examine publication trends within the peer-reviewed scientific literature. Previous authors have argued that this method provides information that compliments that of other sources such as analysis of funding sources (Pincus, Henderson, Blackwood & Dial, 1993). Analysis of publication trends has been used in other fields such as clinical medicine (Fava, Guidi & Sonino, 2004) and addiction (Zurían, Aleixandre & Castellano, 2004), as well as in other mental disorders (e.g. Blashfield & Intoccia, 2000). Examination of the publication trends can also be applied to anxiety disorder research. Our aim is to briefly review the previous research into anxiety disorder publication trends, extend and update this work, and speculate about likely future research trajectories.

Pincus et al. (1993) conducted a systematic review of the published works in two leading psychiatric journals, the *American Journal of Psychiatry* and *Archives of General Psychiatry*, over the period 1969 to 1990. Over this period, the number of articles devoted to anxiety disorder research rose from 1.5 percent in 1969-1970 to 16.1 percent in 1989-1990. This rise in anxiety disorder research was supported by

Norton, Cox, Asmundson & Maser (1995) who examined the growth in anxiety disorder research across the 1980s, finding that the publication rate had increased by up to tenfold. Despite this growth in research output, Norton et al. were sceptical as to whether this growth would continue into the 1990s.

A thorough review of publication trends in the anxiety disorders in the early 1990s was conducted by Cox and colleagues (Cox, Wessel, Norton, Swinson & Drenfeld, 1995; Cox, Wessel, Norton & Swinson, 1994). Using a collection of 14 journals that regularly publish anxiety disorder research from multidisciplinary sources, the authors examined not only the number of publications, but also the professional background of the senior author and the design and nature of each. In contrast to the period up to 1990, Cox et al. observed that the proportion of research devoted to anxiety disorders was neither rising nor falling over the period 1990-1992. Coupled with the research before the 1990s, it appeared that interest in the anxiety disorders had reached a plateau.

Despite the pessimism of previous authors that anxiety research would continue to increase, there is some limited evidence that this has not occurred. Publication trends in social phobia, for example, were documented in a recent article by Mendlowicz, Braga, Cabizuca, Land, & Figueira (2006). These researchers reported that research output in the area of social anxiety disorder has steadily climbed over to period 1973-2001, in contrast with avoidant personality disorder which had declined sharply.

This review is designed to document the growth of anxiety disorder research and impact over the period 1980-2005, and to predict the likely future course of research based on these trajectories. Similarly to previous authors, we will examine the number of studies published during the period. We will however, extend on these

previous reports in a three important ways. Firstly, we will update previous reviews of anxiety disorder publications rates, examining publications up to the end of 2005. Secondly we will cast our review over a much longer time period, examining longer-term trends in anxiety disorder research over the last 25 years. Thirdly, we will attempt to extrapolate from the existing data, to project future research trends within the anxiety disorder field.

Method

Procedure

Our method was based closely on that used by Mendlowicz et al. (2006) in their investigation of publication trends in social phobia and avoidant personality disorder. We utilised the most popular database of pertinent English-language medical literature: Medline. The search terms used in the source database were designed to capture articles that were focused on individual anxiety disorders. These search terms are detailed in Table 1. For each year in the period 1980 – 2005, we conducted a search for English language articles that were focused on each individual anxiety disorder. Searches were conducted for each of the listed search terms in the title of articles from the source database. Searches were restricted to the title of articles in line with the method used by earlier authors (e.g. Mendlowicz et al., 2006). Only original and review articles were included, while letters and commentaries were excluded. Duplicate and non-relevant articles were removed from the database, and the final database was inspected visually for errors. The initial search results are documented in Table 1.

Several judgements were made when deciding which articles to exclude and include in our final dataset. For acute stress disorder (ASD), many articles describing the impact of acute stressors were excluded, with only articles referring to the disorder itself being included in our tally. Our count of articles relating to panic disorder included articles with titles mentioning either panic disorder or panic attacks. The specific phobia tally included all phobias, while the category of social phobia included all articles referring to social anxiety symptoms. The most complex judgements about inclusion were required for obsessive compulsive disorder (OCD). In the count of OCD papers we included articles which mentioned compulsions typically associated

with OCD (e.g., cleaning, checking, etc.), while excluding others not typically associated with OCD (e.g., compulsive gambling, compulsive drug use, etc.). It is recognised that some of these judgements may have been made differently by other researchers, however it is argued here that the current results present a representative sample which still allows assessment of trends in publication rates in anxiety disorders.

Results

1980 to 2005

Figure 1 shows the published papers found in our search, displayed separately for each anxiety disorder, over the period 1980 to 2005. Overall the results demonstrate a steady rise in anxiety disorder research over the past 25 years. The growing dominance of PTSD in the literature dominates the Figure 1, with PTSD being the most commonly researched anxiety disorder since 1980. We located nearly 4000 articles published over our quarter-century review period. There has been a steady, linear rise in publication since the early 1980s. Research into panic disorder showed a dramatic rise in the mid-1980s, with a sustained, large amount of research to the present day. By 2005, panic had fallen behind growing research in OCD and PTSD, leaving it in third place. Panic was the second most research anxiety disorder over our quarter-century review period. The second most researched anxiety disorder in 2005 was OCD. Second only to PTSD, and the third most research anxiety disorder over the period 1980-2005, OCD has shown a stead growth in research over the last 25 years.

Of all the anxiety disorders, the one which has remained most stable over the 25 year review period is specific phobia. Research into this prototypical anxiety disorder has remained relatively constant. Research into agoraphobia apparently declined over the review period. A period of increased publication in the mid 1980s was followed by a gradual decline in research output over the 1990s. The new diagnostic category of acute stress disorder has not attracted a large amount of research interest more than 10 years after its creation.

Social phobia remained a relatively quiet area of research until 1994, after which there was a rapid, steady increase in publications. Generalized anxiety disorder

followed a similar pattern, although research interest did not begin to increase until 2000, and to a lesser extent than for social anxiety.

2005 to 2015

Individual linear regression equations were derived for each individual anxiety disorder, using year of publication as the predictor and number of publications as the dependent variable. Table 2 shows these linear regressions, and the results when these trends are used to project publication rates to 2010 and 2015. Based on current trends, it appears that anxiety disorder research will continue to be dominated by PTSD, panic and OCD. It is also projected that there will be steady growth in research in other disorders such as social phobia and generalized anxiety disorder. Extrapolating from the past 25 years, it is anticipated that only research into agoraphobia will decline over the next 10 years.

Discussion

In the period from 1969 to 1990, there was a dramatic increase in the number of anxiety disorders studies published, as well as the proportion of general psychiatric research devoted to anxiety disorders (Pincus et al., 1993; Cox et al., 1995). Evidence that this increase had reached a plateau by the early 1990s (Norton et al., 1995) was not supported by a detailed investigation of the social anxiety research to 2001 (Mendlowicz et al., 2006). We sought to examine broad trends in anxiety research over the past quarter century.

Our results did not accord with the concerns of some authors (Norton et al., 1995) writing in the early 1990s who suggested that anxiety disorder research may have reached a plateau. We found ongoing growth in research in all but two anxiety disorders, and dramatic growth in research in several of these. Furthermore, we projected that this growth was likely to continue into the foreseeable future, with continuing expansion of interest and research output.

There is considerable room for speculation as to why different anxiety disorder literatures have demonstrated differences in growth over the review period, although it is difficult to draw any firm conclusions. Since the publication of the DSM-III-R, anxiety disorders have been more fully separated from affective/mood disorders. The recognition that anxiety disorders have specific diagnostic, treatment and prognostic implications for individuals has led to a change in thinking about their relationship with other emotional disorders. This evolution in the understanding of anxiety disorders has taken place as a result of ongoing research, but has in turn spurred further empirical and conceptual research in the area. A clear example of this is the rise in publication rates in panic disorder which closely follows the landmark cognitive reconceptualisation of panic in the mid 1980s (Clark, 1986).

The period from 1980 has also witnessed dramatic advances in treatment of the anxiety disorders. Psychological methods such the cognitive and behavioural interventions have been proposed and tested, as have the models underpinning these treatment approaches. Pharmacological treatments have also advanced considerably over this period, with the introduction of SSRI antidepressants, and expansion of the range and application of anxiolytic medication.

It should be acknowledged that the current study does not attempt present a definitive total of the research output in the field of anxiety disorders. Judgements were made as to the inclusion and exclusion of many articles, and no effort was made to source articles without the disorder names in their title. Furthermore, although the review was based on the largest database of treatment literature, it did not include other databases such as PsycInfo. The results herein are, however, presented as a representative sample of the anxiety disorder literature, which allows the read to gauge the relative research interest in each disorder.

In conclusion, it appears that research into anxiety disorders has continued to boom over the past 25 years, and is likely to continue to do so into the immediate future.

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Figure Captions

Figure 1. Individual Anxiety Disorder Publication Frequency 1980-2005.

Figure 2. Total Publications for Individual Anxiety Disorders.

Publication Rates for Individual Anxiety Disorders

Total Publications (1980 - 2005)

Table 1

Search Terms Used and Initial Results for Individual Anxiety Disorders

Anxiety Disorder	Search Terms	Initial Articles Found*
Panic Disorder	PANIC	4290
Agoraphobia	AGORAPHOBI*	755
Specific Phobia	SPECIFIC PHOBI* OR SIMPLE PHOBI* OR *PHOBIA	1322
Social Anxiety Disorder	(SOCI* ANXI*) OR (SOCI* PHOBI*)	1543
Obsessive-Compulsive Disorder	OCD OR OBSESSI* OR COMPULSI*	4359
Acute Stress Disorder	ACUTE STRESS DISORDER	122
Posttraumatic Stress Disorder	POST-TRAUM* OR POSTTRAUM* OR PTSD	9676
Generalized Anxiety Disorder	GENERALIZED ANXIETY OR GAD	1086

* Before manual screening for false-positives. See Figure 2 for final totals.

Table 2

Predicting Anxiety Disorder Publication to 2015

	Years Used	<i>r</i>	<i>r</i> ²	Adj. <i>r</i> ²	B	Const.	Significance	Projected	
								2010	2015
Panic	1980 – 2005	.73	.53	.51	5.93	-11680.7	$F(1, 24) = 26.74, p < .001$	239	268
Agoraphobia	1980 – 2005	-.50	.25	.22	-0.71	1431.7	$F(1, 24) = 7.85, p < .05$	5	1
Specific Phobia	1980 – 2005	.09	.01	-.03	-0.07	152.3	$F(1, 24) = 0.19, p > .05$	12	11
Social Phobia	1980 – 2005	.94	.88	.88	4.47	-8863.5	$F(1, 24) = 175.99, p < .001$	121	144
OCD	1980 – 2005	.97	.94	.94	7.83	-15485.0	$F(1, 24) = 347.80, p < .001$	253	292
ASD	1995 – 2005	.65	.42	.40	0.86	-1720.3	$F(1, 24) = 6.60, p < .05$	8	13
PTSD	1980 – 2005	.97	.94	.93	15.12	-29968.4	$F(1, 24) = 348.62, p < .001$	423	498
GAD	1980 – 2005	.94	.89	.88	1.88	-3732.4	$F(1, 24) = 189.80, p < .001$	46	56