



## Investigating trajectories of change in psychological distress amongst patients with depression and generalised anxiety disorder treated with internet cognitive behavioural therapy

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### ARTICLE INFO

#### Article history:

Received 16 August 2011

Received in revised form

6 March 2012

Accepted 15 March 2012

#### Keywords:

Internet cognitive behavioural therapy

Effectiveness

Primary care

Depression

Anxiety

### ABSTRACT

Internet based cognitive behavioural therapy (CBT) is efficacious for the treatment of anxiety and depression. The current study aimed to examine the effectiveness of internet based CBT prescribed by primary care clinicians for the treatment of depression and generalised anxiety disorder. Psychological distress data from 302 patients who completed an online CBT course for depression and 361 patients who completed an online CBT course for generalised anxiety disorder were subjected to growth mixture analysis. For both disorders psychological distress decreased across each lesson in a quadratic trend. Two classes of individuals were identified with different trajectories of change: a large group of individuals who responded well to the courses and a smaller group of individuals with a lower response. Both groups were similar with respect to socio-demographic characteristics however the Low Responders tended to have higher levels of symptom severity and psychological distress at baseline in comparison to the responders. For the majority of patients (75–80%) the internet CBT courses for depression and generalised anxiety disorder were effective. Further research is required to identify and effectively treat the smaller proportion of patients who did not improve during internet CBT.

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### Introduction

Depression and anxiety are chronic conditions that if left untreated are responsible for high levels of distress, impairment, and disability, equal to chronic physical conditions such as diabetes, cancer, and arthritis (Mathers, Vos, Stevenson, & Begg, 2000). Treatments such as Cognitive Behavioural Therapy (CBT) are highly efficacious at treating anxiety and/or depression (Butler, Chapman, Forman, & Beck, 2006). Internet based CBT treatment programs, administered under the guidance of clinicians, have the potential to dramatically reduce many of the barriers to treatment that sufferers of these conditions face (Titov, 2007). To further validate the point, a meta-analysis of 22 randomised controlled trials has demonstrated the efficacy of internet based CBT programs to significantly reduce distress, disability, and symptom severity in comparison to waitlist controls (Andrews, Cuijpers, Craske, McEvoy, & Titov, 2010). With such evidence, it seems likely that initiatives designed to

increase and improve access to internet based treatment for mental disorders will become the norm.

The CRUFAD clinic ([www.crufadclinic.org](http://www.crufadclinic.org)), a not-for-profit initiative of St. Vincent's Hospital, Sydney, Australia, is one such approach to disseminate internet based CBT programs to the wider community. The primary target of the CRUFAD clinic was patients of GPs, psychologists, mental health nurses, and other specialist health workers, particularly those working in rural and remote parts of Australia. The programs were essentially designed to be used as an 'intern in the practice', meaning that internet based CBT could be used as a mechanism for GPs and mental health workers to provide cost effective and time efficient programs for treating their patients who suffer from anxiety and depression. Clinicians could then dedicate more therapeutic time to their severe patients who require additional attention and treatment. To date, the CRUFAD clinic has had 3600 patients enrol in one of their internet CBT courses, a large proportion of patients coming from rural areas of Australia. The efficacy of the courses has been established in multiple randomised controlled trials (e.g. Andrews et al., 2010; Perini, Titov, & Andrews, 2008; Perini, Titov, & Andrews, 2009; Robinson et al., 2010; Titov et al., 2009, 2010) but the true effectiveness of the internet treatment programs offered by the CRUFAD clinic, and more importantly the actual trajectory of change in

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psychological distress experienced by patients who complete treatment, has yet to be fully examined.

Consequently, the current study represents one facet of an ongoing quality assurance program for the CRUFAD clinic, which has the general aim to investigate the effectiveness of the internet based CBT courses as well as investigating the need for any significant improvements to the overall service. The current study aimed to investigate the trajectories of change in psychological distress amongst completers of two CRUFAD Clinic programs, one for depression and one for anxiety (Generalised Anxiety Disorder; GAD). A steadily decreasing trajectory of change across each of six lessons will demonstrate the effectiveness of the online depression and GAD courses across the wider community. It is also possible that certain groups of individuals within the total sample may experience little response to treatment and therefore improvements are required to better serve those sub-populations. Therefore, the secondary aims of the current study included: 1) to investigate the presence of any significant sub-classes of patients that exhibit different trajectories of change in psychological distress, and 2) to identify any significant factors, including socio-demographic and clinical characteristics, that may accurately predict class membership and facilitate with identifying individuals who may not benefit from online CBT programs.

## Methods

### Participants

The study comprised of participants admitted to Internet CBT courses for a primary diagnosis of either depression or GAD. The courses were developed and maintained by St Vincent's Hospital, Sydney, Australia. Patients were prescribed the online courses by their GP, psychologist, mental health nurse, or other mental health specialist and remained in the clinical care of their prescribing clinician for the entirety of the online course. The study examined patient data that was collected between the 12th February 2009 and the 19th May 2011.

There were 302 patients that completed the depression course between the dates, 58% female and 42% male, with an average age of 43 and a standard deviation of 14. Of those patients who were admitted to the depression course approximately 52% were classified as living in a rural area and the majority of patients (46%) were referred and managed by their GP. There were 361 patients that completed the GAD course between the dates of the current study, comprising of approximately 74% female and 26% male with an average age of 43 and a standard deviation of 14. Of those patients who were admitted to the GAD course approximately 37% were classified as living in a rural area and again the majority of patients (65%) were prescribed and managed by their GP. Patients admitted to either course were predominately residing in Australia with a small percentage of patients residing in New Zealand.

### Intervention/procedure

The interventions utilised in the current study were developed in conjunction with the Virtual clinic ([www.virtualclinic.org.au](http://www.virtualclinic.org.au)), a not-for-profit research initiative of St Vincent's Hospital and the University of New South Wales. The Virtual clinic is a research portal with the primary purpose to design and conduct randomised controlled trials of internet based CBT programmes for anxiety and depression. Once proven efficacious, the programmes were disseminated to GPs and clinicians through a prescription and/or referral process known as the CRUFAD clinic (Andrews & Titov, 2010).

The content of the programmes has been described in detail previously (see Robinson et al., 2010; Titov et al., 2010). Briefly, the

programmes comprise six online treatment lessons representing best practice principles of CBT as well as regular homework assignments and access to supplementary resources. Each lesson was designed using a cartoon narrative that describes several principles and techniques of CBT, including: psycho-education, behavioural activation, cognitive restructuring, graded exposure, problem solving, assertiveness skills, and relapse prevention. Patients were required to obtain a prescription from a GP or clinician registered with the CRUFAD clinic in order to be enrolled in one of the intervention courses. Clinical responsibility was maintained by the prescribing clinicians who were given regular updates via email regarding their patient's progress. Patients were required to complete each lesson prior to moving onto the next and were encouraged to complete the course within 10 weeks. Socio-demographic information on each patient was collected at enrolment. The primary outcome measure was collected prior to commencing each lesson whilst disorder specific outcome measures and levels of functional impairment were collected at the first and last lesson of each course.

### Measures

The primary outcome measure of interest in the current study was the Kessler-10 psychological distress scale (K10). The K10 comprises 10 items ranked on a five point scale designed to measure and monitor trends of non-specific psychological distress in the past two weeks. The K10 contains items that were designed to assess levels of fatigue, nervousness, hopelessness, restlessness, depression, loss of energy, and worthlessness. Traditionally, the K10 ranges from 10 to 50 and measures psychological distress in the past 30 days, however the current version of the K10 utilised skip instructions that would skip a question depending on the response given to a previous question, therefore the total scores could range from 8 to 50. Furthermore, the K10 was altered so that it would measure psychological distress in the past 14 days (two weeks) rather than in the past 30 days. The K10 possesses strong psychometric properties, including a one factor structure, strong reliability and validity, sensitivity to change, and can be used as a valid predictor of the common DSM-IV mental disorders (Andrews & Slade, 2001; Furukawa, Kessler, Slade, & Andrews, 2003; Kessler et al., 2002; Perini, Slade, & Andrews, 2006; Slade, Grove, & Burgess, 2011; Sunderland, Slade, Stewart, & Andrews, 2011).

The disorder specific outcome measure used for the depression course was the PHQ-9 (Kroenke, Spitzer, & Williams, 2001) whereas the disorder specific outcome measure for GAD was the GAD-7 (Spitzer, Kroenke, Williams, & Lowe, 2006). Both outcome measures are brief self-report dimensional scales that measure the presence and severity of DSM-IV major depression and anxiety in the past 14 days. The PHQ-9 contains nine items rated on a four point scale whilst the GAD-7 contains seven items rated on a four point scale. Scores for the PHQ-9 can range from 0 through to 27 whilst scores for the GAD-7 can range from 0 to 21 with higher scores reflecting higher levels of psychopathology. The PHQ-9 and GAD-7 have sound psychometric properties and have been used extensively to measure treatment outcomes during internet CBT interventions targeting depression and anxiety (Dear et al., 2011; Titov et al., 2011).

Levels of functional impairment in the past 30 days were measured using the World Health Organization Disability Assessment Schedule 2.0 (WHODAS 2.0). The WHODAS 2.0 contains 12 items designed to measure disability and activity limitation in a variety of domains, which include: 1) understanding and communicating, 2) self-care, 3) mobility, 4) interpersonal relationships, 5) work and household roles, and 6) community and civic roles. It has been demonstrated that each of these domains loads

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