

## Cognitive behaviour therapy: a comparison of costs

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### What is CBT?

Cognitive behavioural therapy (CBT) was developed in the 1960s by Aaron T Beck as a short-term, targeted and structured treatment for depression (Beck, 1964). CBT is now very widely used in the UK as an effective treatment option for many mental health problems beyond depression, including obsessive compulsive disorder (OCD), post-traumatic stress disorder (PTSD), anxiety and others. The therapy aims to reduce distress or unwanted behaviour by undoing previous learning or by providing new learning experiences through brief, highly-structured, problem-orientated and prescriptive tasks, with individuals as active collaborators. The method of delivering CBT varies depending on the individual's needs. For example, it may be delivered by trained therapists, such as clinical psychologists, mental health nurse specialists and psychiatrists, or via an interactive computer interface – computerised CBT (CCBT). The optimal length of therapy varies among individuals and conditions from 'low' to 'high' intensity (NICE, 2008). The Department of Health reports that CBT's evidence base, short-term nature and economical use of resources make it attractive to patients/clients, practitioners and service purchasers, and more money is allocated to it than to all other psychological therapies (Department of Health, 2012).

### Economic evaluations of CBT

Economic evaluations of CBT interventions are in demand, for two reasons. Since its introduction 50 years ago, CBT has been adapted for the treatment of a wide range of disorders and problems (Beck, 2011). As well as depression and anxiety, CBT is now used in the treatment of low back pain (Lamb et al., 2010), irritable bowel syndrome (Kennedy et al., 2005), chronic fatigue syndrome (White et al., 2005), psychosis (Kuipers et al., 1998), diabetes (Ismail et al., 2010) and eating disorders (Schmidt et al., 2007), among others. As CBT for different disorders is adopted into health systems, treatments are evaluated for their effectiveness and their cost-effectiveness.

Alongside an expansion of use in disorders, CBT has received substantial financial investment in the UK through the Increasing Access to Psychological Therapies (IAPT) programme, delivering CBT in primary care to people with depression and anxiety (Department of Health, 2012). The political support for the IAPT programme was based on a claim that CBT can 'pay for itself' as those treated successfully reduce their use of health services and return to work (Layard, 2006); therefore economic evaluation is central to the appraisal of the programme.

Economic evaluations require unit costs, and readers of this volume will appreciate the importance of the accuracy of these costs. Whilst an estimate of the cost of a CBT session for children and adolescents has been included in recent *Unit Costs of Health and Social Care volumes*, this is not necessarily applicable to novel applications of CBT or to the IAPT programme. In this paper, we compare and contrast the reported costs of CBT in the UK in order to report the range of costs, to identify good practice, to consider what factors influence costs and to identify any barriers to accurate costing.

### The range of costs reported

Following a brief literature search we identified 21 papers that reported the results of cost-effectiveness analyses of CBT for depression in the UK, which are listed in full in table 1. In four papers the unit cost of the CBT was not reported, but for all others the cost was converted to an hourly cost and up-rated to 2011/12 prices using the Hospital and Community Health Services Index (Curtis, 2012). The cost per hour for individual therapy ranged from £31 to £133 (2012 prices).

### Cost components of CBT

Typically, CBT interventions are costed on the basis of the salary of the professional involved, including relevant oncosts (employer's national insurance and superannuation contributions) and overheads (administrative, managerial and capital; Curtis, 2012). Byford (2007) included indirect time using information provided by the trial therapists on the ratio of direct face-to-face contact to all other activities. Supervisor costs, however, were excluded due to difficulties in accurately separating supervision for the two trial groups but were explored in sensitivity analysis. The study also excluded the cost of the initial clinical assessment and that of a brief pre-randomisation intervention. Other studies either did not account for non-direct time, or used existing estimates from previous research reported in table 2.6 in this volume.

Using a different approach, van der Gaag et al. (2011) included both the training and supervision of psychologists and nurses in the cost of CBT for persistent and recurrent psychosis in people with schizophrenia-spectrum disorder. In addition to therapist wages and the cost of the therapy office, the study incorporated time costs (related to the CBT intervention) based on the number of attended training and therapy sessions, combined with information on the net income of participants (using shadow prices for participants who did not have paid work). Informal care (valued as the time invested by relatives or acquaintances in helping or assisting the participant during treatment); out-of-pocket costs; productivity losses; and costs related to changes in the amount of participants' voluntary (unpaid) work were also taken into account (van der Gaag et al., 2011).

### **Identifying factors that influence variation in cost**

The unit costs in most of the papers were based on tables from this volume, which were either taken directly or with some modification in the assumptions. These costs use a bottom-up estimation approach where the different elements of a health service contact are described, a cost for each element identified and then the total cost aggregated.

The variation in the unit costs presented is mainly due to the profession and qualification of the treating clinician. Where the therapy is delivered by a doctor or clinical psychologist, costs tend to be higher (McCrone et al., 2012; Seivewright et al., 2008) while where the therapy was delivered by a therapist or nurse, costs were generally lower (Lamb et al., 2010; McCrone et al., 2008).

One exception to the bottom-up approach to costing was the cost of the CBT delivered as part of the IAPT programme (Hammond et al., 2012). In this evaluation, the authors estimated costs using a top-down approach, taking the total budget and dividing it by the number of hours of therapy delivered. Using this method, the cost per hour with a therapist was higher than all the other unit costs reported. This discrepancy in costs is particularly pertinent since in the IAPT programme therapists are not doctors or psychologists, and the practitioners' salary costs are lower and more closely aligned with nurses' salaries.

A scoping search of the evidence on factors influencing the costs of CBT revealed a shortage of relevant literature. Therapists' time was reported as the most significant cost driver in CBT for panic disorder, and sensitivity analysis indicated that cost-effectiveness improved when the number of therapist hours was reduced (NICE, 2008; Smit et al., 2009).

Based on the extensive variation of recommended CBT among conditions (NICE, 2008), we hypothesise that type and severity of disease, level of disability and patient needs may be key factors influencing the cost of therapy, and these need further investigation.

### **Good practice in costing**

In common with previous commentaries on costs, we start with a plea for transparency (Graves et al., 2002). Many of the papers we reviewed did not contain adequate information on the method used to estimate unit costs, and therefore it is difficult to make firm judgements on the appropriateness or otherwise of the approach used. In economic evaluations comparing a CBT intervention with a control, the cost of the CBT is likely to be a key cost difference; therefore the costing method should be clearly stated and referenced.

We identified an inconsistency between the unit costs of CBT that were estimated using a bottom-up approach, as applied in this volume, and a top-down approach. Further research should focus on identifying possible reasons for this discrepancy and these should feed into better practice in costing.

Author	Intervention	Patient group	Therapist	Cost per hour
Barton et al. (2009)	CBT	Psychosis	Case managers/therapists	£70.91
Byford et al. (2003)	CBT	Self-harm	Therapists	
Byford et al. (2007)	CBT	Depression (adolescents)	Psychiatrists	£76.25
Chisholm et al. (2001)	CBT	Chronic fatigue syndrome	Therapists	£65.87
Hammond et al. (2012)	CBT/IAPT	Depression and anxiety	Graduate therapists	£141.47
Hollinghurst et al. (2010)	CBT (online)	Depression	Therapists	£71.48
Johnson et al. (2007)	CBT (group)	Low back pain	Physiotherapists	
Kuipers et al. (1998)	CBT	Psychosis	Therapists	£105.62
Kuyken et al. (2008)	MBCT (group)	Depression	Therapists	£32.50
Lam et al. (2005)	Cognitive therapy	Bipolar disorder	Clinical psychologists	£92.45
Lamb et al.(2010)	CBT (group)	Low back pain	Range of HCPs	£3.12
McCrone et al. (2004a)	Computerised CBT	Anxiety, depression	Computer programme	£21.98
McCrone et al. (2004b)	CBT	Chronic fatigue syndrome	Therapists	£58.16
McCrone et al. (2008)	CBT	IBS	Practice nurses	£46.99
McCrone et al. (2012)	CBT	Chronic fatigue syndrome	Clinical psychologists	£117.00
Palmer et al. (2006)	CBT	Borderline personality disorder	Therapists	£111.84
Patel et al. (2011)	CBT	Type I diabetes	Trained nurses	£115.28
Romeo et al. (2011)	CBT	Prevention of depression in older people	Therapists	
Schmidt et al. (2007)	CBT guided self-care	Bulimia nervosa	Therapists	
Seivewright et al. (2008)	CBT	Health anxiety	Clinician	£121.76
Startup et al. (2005)	CBT	Schizophrenia	Clinical psychologists	£86.66

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