

The effects of a short course in cognitive and behavioural therapy (CBT) on knowledge acquisition in non-specialist CBT practitioners.

Andrew E. P. Mitchell, PhD*

Faculty of Health & Social Care, University of Chester, Chester, United Kingdom

ABSTRACT

In this study, we investigate the effects of training on knowledge acquisition in Cognitive Behavioural Therapy (CBT). Knowledge acquisition is assessed through the Cognitive Behavioural Therapy Knowledge Questionnaire (CBT-KQ; Myles, Latham, Ricketts, 2002). The CBT-KQ contains 26 multiple-choice questions from five conceptual topics: general CBT issues, theoretical underpinnings of behavioural approaches, theoretical underpinnings of cognitive approaches, practice of behavioural therapy, and practice of cognitive therapy. Thirty eight students attended weekly 3 hour sessions and were tested at weeks 1 and 15 in a before and after study. Improvements in the CBT-KQ were modest but showed significant changes in three conceptual topics; general CBT issues, theoretical underpinnings of cognitive approaches and practice of cognitive therapy. These findings may have important implications for structuring CBT training, so that both the cognitive and behavioural components are shown in the knowledge acquisition and practice applications. Recent evidence suggests that the behavioural components of treatment for some conditions, such as depression, may be more important than the cognitive components. In addition, recent evidence indicates that the behavioural components might be more suitable for delivery by non-specialist CBT practitioners.

Keywords: Cognitive and Behavioural Therapy, Knowledge acquisition, Education, Training.

INTRODUCTION

Given the evidence base for the effectiveness of CBT for depression, anxiety and other emotional disorders, it is essential that a knowledgeable workforce can implement these treatments. Knowledge acquisition in CBT is important not only for the mental health professionals who specialise in CBT, but also for all mental health professionals as it is an evidence-based treatment that patients will expect their mental health professional to be able to introduce as a possible treatment. Whilst evidence exists for the effectiveness of CBT, there is a gap in the understanding on how best to fill the demand and how best to provide the training required for the service provision of these treatments. Roth and Pilling (2007) provided a description of CBT competencies; Level 1 requires generic competencies; Level 2 requires basic and specific CBT competencies; Level 3 requires problem specific CBT skills; and Level 4 requires metacompetencies. Weisz, Uguelo, Herren, Afienko, and Rutt (2011) reject the idea that full protocols should be taught and instead suggest that specific practice elements or specific interventions should be taught. In the main, short courses in CBT will address Levels 1 and 2, while extended programmes addressing levels 3 and 4 require a longer and more comprehensive training.

The main aim of CBT training is to enhance patient outcomes through increased practitioner knowledge and practice based skills. The treatment itself focuses on two main components, thoughts (cognitions) and actions (behaviours) but also involves emotion (affect) and how this is connected with cognition and translated into behaviour (sometimes called conative). Beck (1976) argued that the main active ingredient was the cognitive therapy component. The main target in the cognitive component of cognitive-behavioural therapy is challenging beliefs and assumptions, sometimes called cognitive restructuring. The competing behavioural tradition of cognitive-behavioural therapy suggests the main component is challenging escape and avoidance behaviours, sometimes called activation. Hence, the main target in the cognitive tradition is change in cognition and the main target in the behavioural tradition is change in behaviour.

However, in practice, cognitive-behavioural therapists tend to focus on both behavioural and cognitive targets to some extent. When focusing on behavioural targets they do so within the context of how those behaviours relate to the beliefs and expectations from which they arise. Furthermore, neither the cognitive or behavioural components can be used in isolation to bring about change. The so called conative combines the cognitive and affective components, to bring about behaviour change; similarly, behaviour and affective components can be combined to bring about changes in cognition. For instance, in anxiety treatments the behavioural component (exposure) is less potent when the affective component (somatic recognition and control of anxiety symptoms) is ignored. The combining of the behavioural and affective components has led to systematic desensitization as the treatment of choice. Similarly, in depression the cognitive component (working with automatic thoughts) is less potent when the affective component (mood rating and identification) is ignored. The combining of the cognitive and affective components has resulted in a thought challenging

technique using a five column thought diary record (Greenberger & Padesky, 1995). There is also the recognition that behaviour change can bring about changes in cognition and changes in cognition can bring about changes in behaviour.

The present study evaluated the impact of a short training course on knowledge acquisition. It was hypothesized that there would be a significant increase in pre to post scores as measured on the Cognitive Behavioural Therapy Knowledge Questionnaire (CBT-KQ; Myles, Latham, Ricketts, 2002). The training of non-specialist CBT practitioners, via short courses in CBT, is intended to bring about an increase in competencies at level 1 and 2 in cognitive and behavioural therapies for front-line staff working with patients. The training is based on the premise that an increase in knowledge will lead to increased competence in implementing CBT skills in practice (Strunk, Brotman, DeRubeis, & Hollon, 2010). Therefore, it is crucially important for trainers to be able to evaluate knowledge acquisition in cognitive and behavioural training. However, limited evidence exists on the effectiveness of such training and on how best to measure the knowledge acquisition.

CBT training and knowledge acquisition

One core aspect to competence in CBT, is knowledge about CBT process and techniques. CBT knowledge can be defined as the scientific, theoretical and contextual basis of CBT (Roth & Pilling, 2007). The term ‘declarative knowledge’ has been used to refer to the practitioner’s understanding of CBT and ability to correctly identify and operationalize the meaning of key constructs used in CBT (Simons, Rozek, & Jamie, 2013). The key constructs in the cognitive component would be: general issues such as agenda setting, ability to plan and review homework tasks; basic cognitive competencies, such as knowledge of basic theoretical principles and rationale for treatment; specific cognitive techniques including ability to differentiate levels of cognitions and using a thought record to track automatic thoughts and rate emotional intensity; and practice of cognitive therapy protocols, such as treating specific conditions including depression and anxiety disorders. The key constructs in the behavioural component would be: general issues such as goal planning and ability to break down tasks into manageable sizes; theoretical underpinnings of behavioural approaches including classical and operant conditioning; specific behavioural techniques such as exposure procedures, activity monitoring and scheduling; and practice of behavioural therapy protocols in treating specific conditions, such as depression and anxiety disorders

Whilst there is an ability to identify and operationalize constructs in CBT (Simons, Rozek, & Jamie, 2013), there is less agreement on what should be taught, full protocols as defined in randomized control trails (RCT) or the practice elements and specific interventions taken from the full protocol. There have been attempts at isolating single strand treatments from the full CBT protocol to treat depression. One such study isolated the behavioural activation component and used this in the training of non-CBT specialists and compared this to the full CBT protocol (Ekers, Richards, McMillan, Bland, & Gilbody, 2011). The study showed that non-CBT specialists could achieve the same treatment outcomes as the full CBT protocol (Ekers *et al.*, 2011). Training in CBT might consider focusing on the behavioural

component, for instance, rather than focusing on the full CBT protocol as a more parsimonious intervention (Dimidjian *et al.*, 2006). Such research findings will undoubtedly influence training in CBT. Whilst this type of component analysis is warranted, as it will guide future practice, there is a more immediate component analysis required on disseminating and implementing CBT in practice as to what should be taught.

Cognitive and behavioural component studies

A meta-analysis by Hofmann, Asnanni, Vonk, Sawyer, and Fang (2012) undertook an analysis of 106 meta-analytic studies that confirmed the efficacy of cognitive behavioural therapies for a variety of emotional disorders. Studies which have looked specifically at the cognitive component are numerous and have found similar support but also rebuttals. For example, Hayes (2004) identified three “empirical anomalies” in the cognitive component studies. (1) In cognitive therapy, thoughts are treated as “guesses” about the world and patients are taught to examine the evidence for or against a thought. The consequent changes in automatic thoughts is seen as the main driver in symptom change. This has been contested by Longmore and Worell (2007) stating that there is insufficient evidence to show cognitive change precedes symptom change. However, the wider scientific literature focuses on internal representations rather than automatic thought change, and encompasses a broader definition of cognitive change to mean change in internal representations and, as such the evidence is that change is cognitively mediated (Trower, 2012). (2) Symptom improvement seems to proceed direct cognitive techniques that bring about cognitive change. Busch, Kanter, Landes, and Kohlenberg (2006) suggest that it is correct to question whether the rapid response to CBT is explained by cognitive components but also indicates that the debates between proponents of nonspecific versus specific factors remain active and unresolved. (3) It seems that changes in the cognitive components often fail to account for the impact that CBT has had on the behavioural and affective components. Longmore and Worell (2007) indicate the importance and differentiation between cognitive change as a ‘mechanism’ and cognitive change as an ‘intervention’, with the latter indicating that the intervention could be a behavioural technique that brings about cognitive change rather a cognitive intervention. However, the mechanism to symptom improvement via cognitive change has proven difficult to measure directly due to the poor quality of instruments to measure cognitive.

The behavioural component specifically focuses on the behaviours and actions the patient is not currently engaging in. The most obvious aspect of depression is a marked reduction in the frequency of certain kinds of behaviour and an increase in the frequency of others, usually avoidance and escape (Ferster, 1973). There have been a number of component studies focusing on the behavioural component in CBT. Jacobson *et al.* (1996) undertook an analysis of behavioural component for depression. The study involved three groups (n=150); Behavioural Activation (BA), BA + Automatic Thoughts, and BA + Automatic Thoughts + Core beliefs. There was no statistically or clinically significant differences between groups. Also, Cuijpers, van Straten, and Warmerdam (2006) undertook a meta-analysis of activity scheduling involving 16 studies (n=780) between activity scheduling and cognitive therapy. The findings suggested activity scheduling is as effective as cognitive therapy. Furthermore, Ekers, Richards, and Gilbody (2008) undertook a meta-

analysis involving 17 RCTs of behavioural therapies (n=1109) for the treatment of depression and found behavioural therapies to be equivalent to cognitive therapy at both post-treatment and follow-up on severity of symptoms and recovery rate.

Measuring CBT knowledge acquisition

CBT knowledge components that do or do not change as a result of training may prove helpful in developing and re-structuring future training. Therefore, it is a good idea to review the main tools to measure CBT knowledge acquisition. CBT competencies normally start with acquisition of knowledge, both theoretical and scientific basis. The review of the literature indicates a lack of standardised questionnaires for this purpose. The two measures that were found to be most helpful in ascertaining CBT knowledge acquisition are the cognitive therapy awareness scale (CTAS; Myles & Milne, 2004) and cognitive behavioural therapy knowledge quiz (CBT-KQ; Myles, Latham, & Ricketts, 2002).

The cognitive therapy awareness scale (CTAS) was originally developed and used to assess knowledge of cognitive behavioural therapy in patients following therapy (Wright *et al.*, 2002 and Wright *et al.*, 2005). The scale has also been used in CBT training with practitioners to assess knowledge acquisition in pre to post test. The scale contains 40 true / false statements composed into ten key questions. The four true / false statements in each question result in a score between 0 – 4, with a 40 as a maximum score. The scale has shown the ability to measure practitioner knowledge acquisition pre to post CBT training (Myles & Milne, 2004).

The other prominent scale for measuring knowledge is the CBT-KQ, which contains 26 multiple-choice questions from five conceptual topics: (a) general CBT issues, (b) theoretical underpinnings of behavioural approaches, (c) theoretical underpinnings of cognitive approaches, (d) practice of behavioural psychotherapy, and (e) practice of cognitive therapy. Each question is scored as correct or incorrect with a total possible score of 26. The higher the score the more knowledge and understanding shown in cognitive and behavioural therapy. The CBT-KQ has been used to measure change in pre to post training levels of knowledge acquisition (Myles, Latham, & Ricketts, 2002) and is also grounded in clinically relevant contextual information that assess the practical understanding and the ability to use this knowledge in practice. This tool was thought to be the most useful in the present research given the objective to measure the different components in CBT.

METHOD

Aims

The aim of the present study originated from the intention to perform future work on the impact of training in practice. The aim was to investigate the impact of a CBT training course, 15 sessions, studying at degree level, on the pre to post knowledge of cognitive behavioural therapy. The objectives were to:

- evaluate the general knowledge of cognitive and behavioural therapies
- evaluate the theoretical underpinnings of cognitive and behavioural treatments
- evaluate the practice of cognitive and behavioural therapy

Participants

A total of 38 non-specialist CBT practitioners (40% male and 60% female) participated in the present study ($M_{\text{age}} = 38.1$ years, $SD = 10.1$, range 23-60). Participants were students at a University in the Northwest of England. The main core professional qualifications of the non-CBT specialists were; 32 Registered Nurses, 1 Counsellor, 1 Occupational Therapist and 1 Social Worker and 3 with non-recordable core qualifications (see Table 1). The inclusion criteria included being registered on the course. Exclusion criteria included those students unavailable to complete both the pre and post questionnaires. The invite packs, containing participant information sheet and consent forms, were given to all students attending the CBT training.

Table 1. Demographic characteristics

Variable	<i>M (SD) / n</i>	%
Age (years)	38.1 (10.1)	100
Female	23	60.5
Male	15	39.5
Professional groups		
Registered Nurses	32	84.2
Counsellors	1	2.6
Occupational Therapists	1	2.6
Social Workers	1	2.6
Non-recordable core qualifications	3	7.9

Key: M = Mean, SD = Standard Deviation, n = number in subsample, % = Percentage

A post hoc power analysis was conducted using the software package, GPower (Faul, Erdfelder, Lang, & Buchner, 2007). The sample size of 38 was used for the statistical power analyses. The recommended effect sizes used for Wilcoxon matched pair were as follows: small ($f = .15$), medium ($f = .33$), and large ($f = .47$) (Cohen, 1977). The alpha level used for this analysis was $p < .05$. The post hoc analyses revealed the statistical power for this study was .14 for detecting a small effect, .49 for detecting a moderate effect, .79 for detecting a large effect size. Thus, there was adequate power (i.e., approximately 80% power) at the large effect size level, but less than adequate statistical power at the small to moderate effect size levels.

Measures

Knowledge of CBT

Cognitive Behavioural Therapy Knowledge Questionnaire (CBT-KQ; Myles, Latham, Ricketts, 2003) has 26-items, each with four response options, and includes assessment of CBT knowledge, theoretical underpinnings and practical application. The sum of the 26 items was calculated, each item receiving 0 for incorrect answer or 1 for correct answer, at both time intervals for Wilcoxon signed-rank test comparison. The assessment scale was used to measure changes in knowledge of cognitive and behavioural therapy as a pre- and post-measure. Participants completed the measure on pre training session 1 (Week 1) and post training session 15 (week 15). The maximum score on the CBT-KQ is 26.

CBT Course

The CBT training consisted of a 3 hour session each week, for 15 weeks. It was designed to provide training in CBT for non-specialist CBT professionals, working in a variety of primary and secondary health care setting. During the course, students are expected to be working in clinical practice and see patients in their normal work settings. The course consists of teaching sessions in assessment, formulation, intervention, and relapse prevention. The content of the course sought to provide participants with general CBT issues, theoretical underpinnings of cognitive and behavioural approaches and practice of cognitive and behavioural therapies.

Procedure

The study was approved by the institution's ethical committee. The participant information sheet indicated what was involved and clearly indicated that participation was strictly voluntary and no penalties or losses will be incurred by non-participation. Participants were advised that the information they provided would be used for research and publications. All participants signed a consent form prior to completing the questionnaire.

Data analysis

The present study reports summary scores from the CBT-KQ (Cognitive Behavioural Therapy Knowledge Questionnaire). Statistical advice was sought from a statistician and American Psychological Association (APA) guidelines adhered to for data presentation. The sum of the pre- and post-test scores for each participant were calculated and a test of difference was performed to determine if the responses changed from pre to post in a statistically significant manner. Significance was set at 95% where $p < .05$ for the test of difference. Normality was determined with the Shapiro-Wilk test.

RESULTS

A Wilcoxon signed-rank test was selected to test for differences on the CBT-KQ questionnaire between session 1 and session 15. There was a significant increase in CBT-KQ scores ($N = 38$) between 1st session (Median = 8.5, Interquartile range (IQR) = 3.5) and 15th session (Median = 10, IQR = 4.25) showing an increase in knowledge acquisition in CBT ($Z = -3.71$, $df = 37$, $p = < .001$). As the internal consistency (i.e. general agreement between multiple items that make up a composite score) of the CBT-KQ is high, the improvements probably reflect the knowledge acquisition in the short course.

A Wilcoxon signed-rank test was conducted on the five conceptual topics of the pre to post CBT-KQ scores. Three out of the five key topics indicated a significant positive higher median post-test score. Specifically, general CBT issues, theoretical underpinnings of cognitive approaches and practice of cognitive therapy all showed statistical significant differences. General CBT issues indicated that the median post-test scores (Median = 2, IRQ = 1) were statistically significantly higher than the median pre-test scores (Median = 1, IQR = 2) and Wilcoxon test scores ($Z = -3.75$, $p = < .001$). Theoretical underpinnings of cognitive approaches indicated that the median post-test scores (Median = 4, IRQ = 3) were statistically significantly higher than the median pre-test scores (Median = 2, IQR = 1) and Wilcoxon test scores ($Z = -1.99$, $p = .047$). Practice of cognitive therapy also indicated that the median post-test scores (Median = 2, IRQ = 1) were statistically significantly higher than the median pre-test scores (Median = 1, IQR = 1) and Wilcoxon test scores ($Z = -2.08$, $p = .038$). Table 2 presents Wilcoxon signed-rank test scores on CBT-KQ topics pre and post training.

Table 2. Wilcoxon signed rank test scores on the five conceptual topics within the CBT-KQ

	Pre Median (IQR)	Post Median (IQR)	Wilcoxon signed rank test Z =	df	Sig.
CBT-KQ	8.5 (3.5)	10 (4.25)	-3.71	37	< .001*
^s CBT	1 (2)	2 (1)	-3.75	37	< .001*
^t BA	1.5 (1)	1.5 (1)	-0.51	37	.61 n.s.
^l CA	2 (1)	4 (3)	-1.99	37	.05*
^p BT	2 (2)	2 (1)	-1.75	37	.08 n.s.
^p CT	1 (1)	2 (1)	-2.08	37	.04*

Key: CBT-KQ, Cognitive Behavioural Therapy Knowledge Questionnaire; df, degrees of freedom; IQR, interquartile range; ns, not significant; Sig., significant; Z, Wilcoxon signed-rank. ^sCBT, general CBT issues; ^tBA, theoretical underpinnings of behavioural approaches; ^lCA, theoretical underpinnings of cognitive approaches; ^pBT, practice of behavioural therapy; ^pCT, practice of cognitive therapy.

The two conceptual topics that showed a non-significant change were theoretical underpinnings of behavioural approaches and practice of behavioural therapy. Theoretical underpinnings of behavioural approaches indicated that the median post-test scores (Median = 1.5, IRQ = 1) were non-significantly higher than the median pre-test scores (Median = 1.5, IQR = 1) and Wilcoxon test scores ($Z = -.51$, $p = .61$). Practice of behavioural therapy indicated that the median post-test scores (Median = 2, IRQ = 1) were non-significantly higher than the median pre-test scores (Median = 2, IQR = 2) and Wilcoxon test scores ($Z = -1.75$, $p = .08$).

CONCLUSION

It was hypothesized that there would be a significant increase in CBT-KQ pre to post training. The key finding in the present study suggests that the cognitive and behavioural training course showed a significant increase in knowledge and understanding of cognitive behavioural therapy. The post training CBT-KQ scores showed the predicted increase, with three conceptual topics; general cognitive behavioural therapy issues, theoretical underpinnings of cognitive approaches and practice of cognitive therapy. Theoretical underpinnings of behavioural approaches and practice of behavioural therapy showed a non-significant increase.

The participants' gains in knowledge acquisition are broadly consistent with studies in the literature for short courses in CBT (Milne, Baker, & Blackburn, 1999; Myles & Milne, 2004). The present findings support evidence that short training courses increase knowledge acquisition in students, albeit on general cognitive behavioural therapy issues, theoretical underpinnings of cognitive approaches and practice of cognitive therapy. The present study extends these findings by attempting to separate the cognitive and behavioural components in knowledge acquisition during training. However, not all knowledge and competency studies in CBT training have demonstrated significant findings. Bennett-Levy, McManus, Westling, and Fennell (2009) study showed a lack of transferability of knowledge into competencies in practice. The lack of knowledge acquisition in behavioural component, in part, might help in understanding some of the lack of significant findings. It might be that the dissemination of the full CBT protocol might be less useful in practice, compared to specific interventions that help practitioners treat specific conditions. For example, treating depression with a full CBT protocol or using behavioural activation only. Whilst there might be other possible reasons for the lack of significant findings, such as poor measurement tools, it is important to look at the 'dose effect' in training and its implications for course content.

The lack of acquisition in behavioural components, theoretical underpinnings of behavioural approaches and practice of behavioural therapy, in this study is important because it might hint at a training dose effect. The behavioural knowledge acquisition did not show the expected significant increase from pre to post training. There seems to be two

possible reasons for this; the initial score may indicate a high levels of knowledge present at pre training assessment. As a consequence, the increase from pre – post might be non-significant due to the higher baseline levels on these items. This possible explanation was excluded as the initial pre baseline scores indicated low levels of knowledge. The second possible reason might be due to the dose effect delivered in the training for the theoretical underpinnings of behavioural approaches and practice of behavioural therapy might not be sufficient for knowledge acquisition.

Further studies that better isolate the component(s) most essential to knowledge acquisition also are needed, as is an answer to the question of whether the more time should be spent focusing on the specific behavioural components. It is interesting to note that 10 - 15 percent of the contact time was spent on the behavioural theory and practice component of training. It would be interesting to ascertain whether an increase in the incremental time would result in a dose effect in behavioural knowledge acquisition. Furthermore, how much time is needed on theoretical underpinnings of behavioural approaches and practice of behavioural therapy to contribute to the overall gain in knowledge acquisition relative to the time spent on cognitive components, given that the behavioural component might be more important for some conditions, such as in the treatment of depression.

Limitations and recommendations

The major limitation is the fact that there was no control group so we do not have any scores for those not undertaking the training course. The second main limitation is that the CBT-KQ ratings were based on knowledge of CBT rather than an objective skills based competency by a practitioners. This had a limitation in that it only allowed for measurement of knowledge acquisition rather than direct observation of the skill based competencies. Therefore, caution should be taken when generalizing these results of any practice based competencies. Assuming that future studies address the limitations then generalizability should be possible. Moreover, there is a need to develop better tools for measuring training outcomes and for measuring the quality of CBT dissemination. To effectively assess CBT knowledge acquisition it is vital that the knowledge is assessed across different components of CBT training to provide trainers and practitioners with effective feedback.

Implications

The present study suggests that 3 hours per week for 15 weeks CBT training does have a significant impact on cognitive components. It can enable mental health nurses, as well as other health professionals, to improve knowledge acquisition and the ability to contextualise this knowledge in practice. However, practitioners did not show a comparative increase in in the behavioural components. This finding might have important implications for the planning of CBT dissemination efforts, especially with respect to targeting specific behavioural knowledge components in CBT training that will maximize the effects of training efforts.

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