The challenges of estimating the unit cost of group based therapies

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Introduction

Psychological therapies are an increasingly popular treatment approach for people with mental health problems. The UK National Institute for Health and Clinical Excellence (NICE) guidelines state that most patients with depression and anxiety should be offered evidence based psychological therapies (National Institute for Clinical Excellence, 2004) and this position is supported by a group of leading mental health organisations which have joined together to campaign for increased investment and widening access to psychological therapies on the NHS (www.weneedtotalk.org.uk). Psychological treatments have also been embraced by the UK Government. An influential report by the economist Lord Layard, which outlined the case for psychological treatments for depression and anxiety (Layard, 2006), was followed by a Government statement launching two pilot psychological treatment centres (Department of Health, 2007). The treatment centres will house large numbers of therapists who will deliver generally cognitive behavioural therapy (CBT) to people with depression and anxiety.

Whilst most of the evidence of the effectiveness and cost-effectiveness of psychological therapies concerns individual therapy, a number of factors have led to an increased interest in group based therapies. First, the demand for psychological treatments is high and proper implementation of the NICE guidelines means that demand is likely to go on increasing. Second, there is a shortage of therapists. Layard estimated that to implement the NICE guidelines 10,000 more therapists are required (Layard, 2006), raising concerns about the ability to train and recruit these therapists in a timely fashion. Thus not all patients referred for psychological therapy will be able to access it. Third, psychological therapy is an expensive and resource intensive intervention compared to alternative treatments such as antidepressants. Layard estimated the cost of a course of individual CBT at £750, though a review of the literature suggests this may be an underestimate; a paper reporting the cost-effectiveness of CBT for relapse prevention in depression estimated the cost of the therapy at around £1,200 (Scott et al., 2003).

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Group therapy is one method of increasing access to psychological interventions that, with possible cost and administrative advantages, may also be a more cost-effective option. There is very limited evidence of the cost-effectiveness of group therapy and in order to undertake economic evaluations, it is necessary to develop a strategy to estimate the unit cost of group based therapies at the individual level. Despite this need, the literature holds little guidance on the methods of costing groups. We searched all Health Technology Assessment reports (http://www.ncchta.org/) that had evaluated the cost-effectiveness of a group based intervention and none gave sufficient detail on methodology to make a judgement on the merit of their costing approach. Some methodological guidance is required in order to generate transparent and replicable unit cost estimates. In this paper we explore different approaches to the estimation of group based treatments using experience from two economic evaluations of group based therapy for repeated deliberate self-harm in children and adolescents (ongoing work) and recurrent depression in adults (Kuyken et al., 2008).

Estimating the cost of a group therapy session

A useful place to start in estimating the cost of a group therapy session is to look at the methods used to cost health and social care professionals in this publication. The cost of a professional begins with an estimation of the cost per hour, which is calculated by taking the total annual salary costs of the professional, together with appropriate employer costs (e.g. national insurance and pension contributions) and overheads and dividing it by the number of hours worked per year. It is then necessary to adjust the cost per hour to take into account time spent in face to face contact with patients and time spent on other activities such as preparation, administration, supervision and training. In the individual CBT schema 2.13 on page 57, for example, this ratio of direct time (face to face contact) to indirect time (all other activities) is 1:1, so in order to estimate the cost per hour of face to face contact we double the cost per hour. In order to calculate the cost of a full course of CBT, we multiply the cost per hour of face to face contact by the length of each session and by the number of sessions. We can summarise this information in equation (1) below:

(1) $$TC_{CBT} = (((wages + overheads) / workingtime) * ratio) * duration) * no\_sessions$$

Where ratio=direct to indirect time and duration=group session duration.

In group therapy, the therapist treats a number of people in one session, so we can estimate the cost by taking the cost per hour equation and dividing it by the number of people in the group, see equation (2).

(2) $$TC_{CBT} = \left(\frac{(((wages + overheads)/(workingtime)) * ratio) * duration}{number\_group} \right) * no\_sessions$$

So far so good. However in estimating the cost of group based therapies, we have found that the numerator (wages, overheads, working time and ratio of direct to indirect time), the denominator (number per group) and the multiplier (number of sessions) in the equation are heavily dependent on the type of group, the type of professional taking the group and the level of attendance.

Numerator: wages and direct to indirect working time

The numerator is based on the assumptions for estimating the professional time in individual therapy and these assumptions do not necessarily hold for group therapy. For

example, if the professional leading the group therapy is more experienced, the wages rise. In addition the overheads will depend on the location of the therapy; we found that group therapy frequently takes place outside the usual treatment settings for example in community facilities such as village halls.

The ratio of direct to indirect time may also change for group therapy. We learnt that practitioners running group therapy spent longer preparing for group therapy sessions compared with time taken to prepare for individual therapy. There may also be implications in terms of travel time, whilst with individual therapy the practitioner stays in one place and waits for the patients to come to them, with group therapy there may be more travel time as the practitioner moves around to visit groups in different geographical locations. It is therefore important to collect information on the professional, the travel implications and the direct to indirect time ratios for each evaluation.

Denominator: number per group

Concerning the denominator, when estimating the cost of individual contacts with health and social care professionals, it is often considered fair to assume that when a patient does not turn up to an appointment, the practitioner will spend the time allocated to the session doing another task, reducing the potential cost impact of the missed appointment to zero. Even if they don't, the cost is easily calculated as the cost of an attended session.

However, when a therapist is running a group, the group will go ahead unless no-one attends. This poses a challenge to the researcher seeking to accurately estimate the cost of the group therapy - should the cost of the session be adjusted to reflect the number of people in the session, or should the cost be the same for those who attend and those who do not attend. If the first approach is used, the effect is to increase the cost per session for those who attend, the alternative approach keeps the cost of the session the same for all participants 'allocated' to that group whether they attend or not.

Multiplier

Related issues arise with the multiplier. If a therapy group runs for 12 sessions, when estimating costs the researcher needs to decide if they will estimate the cost using the number of sessions they actually attended as the multiplier, or the number of sessions they were allocated as the multiplier.

Approaches to the estimation of group therapy

Two possible approaches to the estimation of group therapy are summarised in equations (3) and (4). In equation (3) the cost of the practitioner time are shared equally among those who were *allocated* to that group, regardless of whether or not they attended.

(3) $$TC_{CBT} = \left(\frac{(((wages + overheads)/(workingtime)) * ratio) * duration}{number\_allocated\_group} \right) * no\_sessions\_allocated$$

In equation (4), the costs are shared among those who *attended* each session.

(4) $$TC_{CBT} = \left(\frac{(((wages + overheads)/(workingtime)) * ratio) * duration}{number\_attended\_group} \right) * no\_sessions\_attended$$

Example: Estimating the cost of group based mindfulness-based cognitive therapy

We tested the two approaches to estimating the cost of group therapy using data from a randomised controlled trial of mindfulness based cognitive therapy (MBCT) to prevent relapse in recurrent depression (Kuyken et al., 2008). Using data on patients that attended one of the five MBCT groups, 11 patients were referred and allocated a place. The groups ran for 12 sessions, although attendance varied; no-one attended all twelve sessions, three people were allocated to the group but did not attend any sessions, and one person attended only once. Among the seven who attended more than one the average number of sessions attended was 10. The group was a closed group which meant that once the eleven members had been invited, no-one else was permitted to join for the duration of the 12 sessions.

Using the first approach (equation (3)), the costs are shared equally among all those who were allocated to the group making the cost the same for each member: £94 or £7.80 per two hour session (standard deviation £0). The second approach (equation (4)) yields very different results: the mean cost per person is £102, standard deviation £80, range £0-£190.

Discussion

We have proposed two approaches to the estimation of unit costs for group based therapies and demonstrated the different results they generate using data from a recently completed study. The first method (equation 3) takes the view that when an individual is allocated, or prescribed a therapy, the researcher should allocate that cost to them whether or not they actually consume it. This view is not uncommon in other costing approaches, for example the cost of drugs prescribed are frequently included without knowing whether or not they have been taken as directed, because they involve a cost at the point of supply rather than at the point of consumption. The first approach is particularly appropriate when the group has closed entry (that is, once participants are recruited to a group no-one else can join), since the method acknowledges that the resources have effectively been consumed by an individual at the point of allocation to the group and cannot be used by anyone else. It is also a simple approach to estimating the unit cost, requiring only the number of participants per group and the number of sessions required for the intervention.

Conversely, the alternative method (equation 4) is a much more resource intensive approach, requiring data on the exact sessions that each participant attended and the number of people that attend each session. The costs will then vary among participants, with those who attend more group sessions allocated higher costs, whilst those who do not attend any group sessions incurring no costs. This approach may be appropriate if the group is open to new entrants throughout its duration, where new members can join as others drop-out. However, in reality there will be a period of time between a member dropping out and a new being member found, assessed and invited to join the group. It does also not deal sufficiently with individual missed appointments.

We suggest that the second approach is only appropriate where there is perfect replacement of members when an individual does not attend. Perfect replacement would occur where a group runs with ten places, which have been allocated to ten people. However, every week, another 20 people turn up and wait outside the door in case one of those allocated a place doesn't attend. The further a group is from perfect replacement, the more the different methods will produce different individual level costs, as in our example of the costs from the MBCT study.

If the second approach is followed without perfect replacement, the result is that there are higher costs for those who attended the group and lower costs for those who did not. This relies on the view that there is some additional benefit of there being fewer people in the group, which is reflected in the higher cost for those who attend. There is no evidence from the literature on group therapy that there is any additional benefit of smaller groups. Conversely, the opposite is true; many practitioners argue that with too few members group treatments will not provide the necessary interactions for successful therapy, with the result that members will have a series of unsatisfactory individual therapy sessions rather than the intended group intervention (Vinogradov & Yalom, 1989).

Estimating the cost of group interventions is a more complex issue than is at first apparent. We consider that unless there is perfect replacement of group members who fail to attend, costs should be calculated on the basis of the resources allocated to an individual when they enter a group, rather that on the basis of attendance at it. However, the appropriate method should be informed by careful consideration of the nature of the group under evaluation.

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