Child and Adolescent Mental Health Volume 10, No. 1, 2005, pp. 26–31

Cost-Effectiveness of Individual versus Group Psychotherapy for Sexually Abused Girls

Paul McCrone[1], Tara Weeramanthri[2], Martin Knapp[1,3], Alan Rushton[4], Judith Trowell[5], Gillian Miles[5] & Israel Kolvin (deceased)[5]

[1]*Centre for the Economics of Mental Health, Box P024, Health Services Research Department, Institute of Psychiatry, De Crespigny Park, London SE5 8AF, UK. E-mail: p.mccrone@iop.kcl.ac.uk*
[2]*Camberwell Child and Adolescent Service, South London and Maudsley NHS Trust*
[3]*Personal Social Services Research Unit, London School of Economics*
[4]*Section of Social Work and Social Care, Institute of Psychiatry, King's College, London*
[5]*Child and Family Department, Tavistock and Portman NHS Trust, London*

Background: Children who have been sexually abused may suffer from emotional and behavioural difficulties. Recent research found that individual and group psychotherapy have similar outcomes. In this study we compare the costs and cost-effectiveness of the two therapies and support for carers. **Methods:** Subjects were recruited to two clinics in London and randomly allocated to the two treatments. The different components of each intervention were identified and costed. **Results:** Total mean costs of individual therapy were found to be £1246 greater than for group therapy. Costs as they would apply in routine practice were relatively unchanged. Group therapy was thus more cost-effective than individual therapy. **Discussion:** Carefully considering the impact of different therapies could allow more treatment to be offered from available staff resources and budgets. However, this is a single small study and further work is required to strengthen the evidence-base before change in practice is readily undertaken.

Keywords: Costs; sexual abuse; children; cost-effectiveness; psychotherapy

Introduction

In recent years there has been a growing interest in how helping troubled children may lead to both immediate and longer-term benefits in terms of health and adaptation. Growing attention has also focused on the economic impacts of not addressing these children's needs in childhood (Scott et al., 2001), and on the cost-effectiveness of different interventions (Knapp, 1997). However, very few evaluations have been conducted that examine the cost-effectiveness of different treatment approaches (Romeo, Byford, & Knapp, in press). In this study we examine the cost-effectiveness of treating sexually abused children.

Children who have been sexually abused are at risk of developing a range of psychiatric, psychological, behavioural and relational problems in childhood and in adulthood (Cotgrove & Kolvin, 1993). These include symptoms of depression and anxiety, low self-esteem, guilt, sleep disturbance, dissociative phenomena, eating disorders, borderline personality disorder in adulthood, self-harm, drug use, sexual behaviour problems, running away, conduct problems, social relationship problems, social withdrawal, sexual promiscuity, and re-victimisation.

In a recent study Trowell et al. (2002) reported that clinically and statistically significant improvements in functioning and symptoms were achieved in sexually abused girls receiving individual and group psychotherapy. In this paper we retrospectively examine the cost-effectiveness of these two types of intervention. The perspective is that of the providers of mental health services to children and support to parents. Impacts elsewhere in the health and social care system have not been assessed. Cost-effectiveness (or, more strictly, cost-consequences) analysis was deemed to be appropriate, given the wide range of problem-specific domains that were measured to ascertain the effectiveness of care.

Method

Sample and setting

A detailed description of the design of the study has been reported previously (Trowell et al., 2002; Trowell & Kolvin, 1999; Trowell, Berelowitz, & Kolvin, 1995). Two centres were included in the study: the Tavistock Clinic (North London) and the Camberwell Child and Adolescent Service (South London). Girls between the ages of 6 and 14 who, within the previous 2 years, had disclosed sexual abuse and had symptoms of emotional or behavioural disturbance that warranted treatment were eligible for inclusion. The girls were assessed at baseline and followed up at one and two years after treatment had commenced. A comparison design with random allocation was used as it was considered

Published by Blackwell Publishing, 9600 Garsington Road, Oxford OX4 2DQ, UK and 350 Main Street, Malden, MA 02148, USA

unethical to leave untreated a group of symptomatic abused girls for the 2-year duration of the study. All subjects were randomised at the Tavistock Clinic using a random number technique and an intention-to-treat perspective was taken. After the initial assessment, subjects and their families were informed as to which form of therapy would be available to them. Blinding of subjects was not possible, nor was it practical to blind the interviewers.

Intervention and supervision

The girls who consented to participate in the study were randomly allocated either to individual or group psychotherapy. The individual treatment comprised up to 30 sessions of focused psychoanalytical psychotherapy. Individual therapists received supervision from a senior child psychotherapist in pairs after every other session. The group treatment consisted of up to 18 sessions with about five girls of similar ages and incorporated psychotherapeutic and psycho-educational components. Older age groups tended to receive more sessions. Each group was led by a pair of therapists who received supervision after each session. For the North London groups, this supervision was provided by a senior social worker, while for the South London groups it was provided by a consultant child psychiatrist.

Support from social workers was also offered to the carers of the girls (Rushton & Miles, 2000). This was a supportive intervention aimed at ensuring the girls' attendance at treatment sessions, helping carers to understand their children's difficulties and responding to the carers' own needs as parents. Most carers received individual support but some were seen in groups. The number of support sessions attended varied. Supervision was offered to the carers' workers and in both areas this consisted of a monthly session with a senior social worker. In North London, this supervision was received in pairs.

Meetings and assessments

In addition to the actual intervention and the supervision provided to therapists, a number of other assessments were conducted and meetings held. Usually, and prior to the intervention, a consultant psychiatrist and a senior social worker held an introductory meeting with the subjects and their carers, to explain the purpose of the research, the treatments available and the process of random allocation. This was followed by a baseline assessment where a child psychiatrist met with the subject, a social worker met with the carer, and a research psychologist met with both (separately). Similar follow-up assessments were conducted one year and two years after treatment began.

The above meetings and assessments were necessary from a research perspective but would not necessarily apply in routine practice where assessment and follow-up would be less extensive. Table 1 gives details of the various components of the intervention and associated assessments as they were planned for the research study. The Table also provides details of how it was expected the service might operate in routine practice.

A number of the girls included in the study had siblings who also received the interventions. It would be unrealistic to assume that for each separate sibling there would be an introductory meeting; likewise it would be unlikely that the carers of siblings would receive separate baseline and follow-up assessments of the same length for each sibling cared for. Therefore, we

Table 1. Components of intervention (including assessments)

		Study		Routine practice	
Component	Provider	Frequency	Duration (minutes)	Frequency	Duration (minutes)
Introductory meeting	Consultant psychiatrist	1	16[1]	–	–
	Senior social worker	1	16[1]	–	–
Baseline assessment	Research psychologist	1	120	–	–
	Consultant psychiatrist/senior registrar	1	90	1	90
	Senior social worker	1	105	1	90
Therapy					
Individual	Various	30	50	30	50
Group	Various	18	75	18	75
Carers support					
Individual	Social worker	15*	50	15	50
Group	Social worker	10*	50	9	50
School meeting	–	–	–	1	45
Supervision of girls' therapists					
Individual	Senior child psychotherapist	15	60	15	60
Group	Senior social worker/cons. psychiatrist	18	75	18	75
Supervision of carers' workers	Senior social worker	Monthly	60	Monthly	60
One-year follow-up	Research psychologist	1	30	–	–
	Consultant psychiatrist/senior registrar	1	45	1[2]	60[2]
	Senior social worker	1	45	1[2]	60[2]
Two-year follow-up	Research psychologist	1	45	–	–
	Consultant psychiatrist/senior registrar	1	58[1]	–	–
	Senior social worker	1	105	–	–

Note: The frequency and duration of sessions and assessments are as planned. However, the costings take account of the actual number of sessions attended and assessments conducted. [1]Weighted average of both areas; [2]follow-up assessments may not always take place in routine practice.

*Because this work was individually tailored there was a large range of frequency of support sessions.

have assumed that one introductory meeting would be held for each sibling group but that these would be 50% longer in duration than such meetings where there were no siblings. We have also assumed that the baseline and follow-up assessments with carers would be reduced in duration for each extra sibling in the study. If there were two siblings, then we have assumed that the carer assessments for the second would be 50% of the length of the first, for a third sibling the length would be 25% of the first, and for a fourth (the maximum number in the study) the length would be 12.5% of the first. Finally, we assumed that if two or more siblings were receiving therapy at any one time, the carer would receive the same intervention as carers with only one child in the study.

It was recognised that other service inputs were provided as part of the overall care package. For example, in many cases social workers helped with transportation to the clinic. Also, the girls would have been in contact with other health care services and families may have been receiving input from social work teams (other than that provided as part of the service). In addition, various extra meetings were held involving professionals and carers at the two clinics. For example, in a small number of cases there was a clinical crisis that required additional professional input. However, comprehensive records of these inputs and events were not kept and these costs could not be included because of the retrospective nature of the economic evaluation.

Outcome measures

A range of outcomes was measured, including psychiatric symptoms, symptoms of post-traumatic stress disorder and global functioning using a semi-structured interview schedule, the Kiddie-SADs (Schedule for Affective Disorders and Schizophrenia), the Kiddie-GAS (Global Assessment Scale) and Orvaschel's scales for PTSD (for full details see Trowell et al., 2002). The experiences of carers during support and their views of the therapy provided to the girls were also recorded (Rushton & Miles, 2000).

Data collection and calculation of costs

There were originally no plans to conduct an economic evaluation and so there was no prospective collection of service use data. Information on the number of therapy sessions attended by girls and the number of support sessions attended by carers was kept in the original study and further information on service contacts was obtained by one of the authors (PM) from case notes held at the Tavistock and Camberwell clinics. The professions of the therapists were also recorded. These included trainee child psychotherapists, qualified child psychotherapists, child psychiatrists and nurse practitioners.

Service use data extracted in this way from case notes and therapists' files were combined with unit costs representing the long-run marginal opportunity costs of the professionals involved in providing the service. Some of these were obtained from a recognised national source (Netten, Dennett, & Knight, 1999), while others were estimated from (national) pay scales and any additional elements were based on similar services reported by Netten et al. (1999). These unit costs consist of salary, employer superannuation and national insurance contributions, overheads and capital costs. The unit costs are national figures, which are appropriate if the results of this study are to be generalised.

Analyses

Given the relatively similar outcomes of individual and group psychotherapy in this study (Trowell et al., 2002), cost-effectiveness can be assessed by determining whether the costs of group and individual psychotherapy differ significantly. The proportions of subjects receiving therapy and for whom assessments were conducted in the two groups were compared. Comparisons were also made between the groups for the mean number of sessions attended, the mean number of assessments provided and the associated mean costs. As the focus of this paper is on the comparative costs of the entire intervention, we only report the findings of significance tests for total costs. These were compared using regression analysis of total cost on type of therapy and a variable indicating whether therapy was provided from the Tavistock Clinic or from Camberwell, in case there were any geographical differences in therapy costs. Non-normally distributed residuals are common with costs data and violate one of the main assumptions underlying the regression model. In such circumstances, bootstrapping can be used (Mooney & Duval, 1993), which involves re-sampling with replacement a large number of times (here 1000) from the original data set in order to approximate the population from which the sample is drawn. Regression coefficients are then calculated for each sample and averaged. This produces more robust coefficients and significance values. The proportion of total cost accounted for by each individual component was then calculated and compared between the two groups.

Results

Eighty-one girls were assessed at baseline, but around 15% of families refused therapy and 71 girls were randomly allocated to treatment: 35 to individual therapy and 36 to group therapy. The Tavistock Clinic provided therapy for 51 girls and another 20 received therapy from the Camberwell service. Forty-nine percent of the sample were under 10 years of age, 28% were attending secondary school, in 40% of cases a legal order had been imposed against the abuser, 55% had been abused more than 10 times, and 38% had been abused for more than 2 years. There were no statistically significant differences between the two groups on these or other variables. These girls were severely affected, with 73% having post-traumatic stress disorder at baseline, 57% major depressive disorder, 58% separation anxiety disorder, and 37% general anxiety disorder. More details of the sample are given by Trowell et al. (2002).

At follow-up, there were substantial improvements, with reduction in psychiatric psychopathology and improvement in overall functioning in both groups. There was a reduction in co-morbidity from 2.59 (mean number of disorders) at baseline to 1.19 at first follow-up and 0.92 at second. At first follow-up, the rate of depression had decreased to 17%, general anxiety to 17%, and separation anxiety to 23%. There was a significant reduction in impairment with the mean K-GAS score changing from 5.01 at baseline to 6.70 at exit

(higher score indicates better functioning) and there were improvements on most dimensions of Orvaschel's scales for PTSD. There were few differences between the two treatment modalities. The main difference at 2-year follow-up was greater improvement on the PTSD re-experience of traumatic events dimension for the individual therapy group (for full details see Trowell et al., 2002).

Data on the interventions received by the girls and their carers are summarised in Table 2. All subjects received therapy and only four had carers who did not receive support. Given the different maximum number of possible sessions of each type of therapy it is not surprising that the number of sessions actually attended was much higher for the individual therapy subjects. The mean cost of a course of individual therapy (£3195) was 64% higher (£1246) than the mean cost of group therapy (£1949). This cost difference was significant ($p < .001$) and there was no statistically significant impact of treatment centre on total costs.

The distribution of therapy costs differed between the two groups (Figures 1 and 2). Carers' support accounted for a disproportionate amount of the total cost compared to individual therapy due to the fact that some of the direct therapeutic work was provided by trainees under supervision. Assessments and follow-ups accounted for a substantial amount of the costs. If the therapy was provided as part of routine clinical practice (as shown in Table 1) then there would not be any substantial changes in total cost due to the low contribution made by the service elements that would be altered.

Discussion

As far as we are aware, this is the first study to compare the cost-effectiveness of different services for sexually abused children: no such studies were found in the recently completed systematic review by Romeo et al.

Table 2. Service use and costs

Service component	Individual ($n = 35$)	Group ($n = 36$)
Introductory meeting		
Mean (*SD*) number of meetings	1 (0)	1 (0)
Mean (*SD*) cost, £s	46 (11)	48 (10)
Initial assessment		
Mean (*SD*) number of assessments	1 (0)	1 (0)
Mean (*SD*) cost, £s	399 (32)	405 (30)
Therapy provided to girls		
Mean (*SD*) number of sessions	26.0 (8.1)	13.3 (4.0)
Mean (*SD*) cost, £s	969 (360)	400 (144)
Carers' support		
Mean (*SD*) number of sessions	14.2 (9.3)	10.1 (5.3)
Mean (*SD*) cost, £s	896 (611)	352 (250)
Supervision of girls' therapists		
Mean (*SD*) number of sessions	13.0 (4.1)	13.3 (4.0)
Mean (*SD*) cost, £s	358 (112)	302 (102)
Supervision of carers' workers		
Mean (*SD*) number of sessions	4.7 (3.1)	3.4 (1.8)
Mean (*SD*) cost, £s	254 (188)	144 (102)
Follow-up assessments		
Mean (*SD*) number of assessments	1.4 (0.7)	1.5 (0.7)
Mean (*SD*) cost, £s	274 (168)	299 (162)
Mean (*SD*) total cost, £s	3195 (1069)	1949 (481)

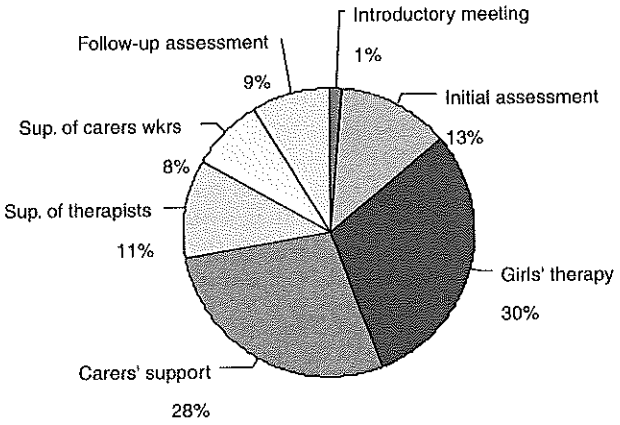

Figure 1. Distribution of total costs of individual therapy

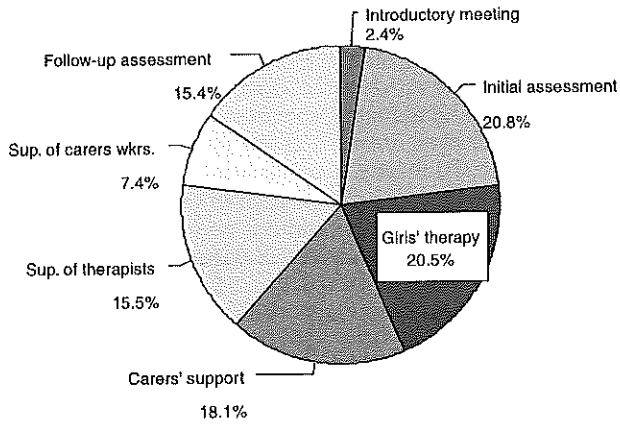

Figure 2. Distribution of total costs of group therapy

(in press). The study has found individual therapy for girls who have been sexually abused to be on average £1246 more expensive than group therapy, a difference that was statistically significant. Overall, we would conclude that, with similar outcomes and higher costs, individual therapy is less cost-effective than group therapy. However, it should be borne in mind that there can be logistical problems in setting up groups and children may have to wait for treatment until there is a sufficient number of a similar age to start a group. A trade-off must therefore be made between the potential savings demonstrated by the study and the possible delay in starting treatment for very traumatised children. The potential costs associated with having to wait for a group to start are important, but were not included in the analysis. Therefore, the cost difference may be overstated. However, in a service covering a large population over a long period of time, or through joint working with other services to run a rolling programme of age-banded groups, it is expected that problems with setting up groups would be reduced.

It is of interest that the costs of the non-therapy components of the treatment package account for so much of the total costs. The costs of the assessments were substantial, in large measure due to the seniority and experience of staff involved. It is not possible to determine what impact the assessments had on outcomes but it is

likely that such comprehensive assessments may have supported good engagement through patients feeling listened to and reassured that every avenue was being explored. Likewise, the cost of support provided to carers is considerable (and this excluded any value attached to carers' lost employment). There were high rates of engagement in the treatment programmes and it is likely that the substantial involvement of carers promoted good patient engagement. In addition, the support given to carers may have had a positive impact upon their own mental health and on family stability. This highlights the importance of other components of care above and beyond the direct therapeutic service provided to the abused girls in the provision of a treatment package for this group.

It is known that sexually abused children are at increased risk of developing mental health problems in adult life. Mullen et al. (1993) found that this related to severity of abuse and sexual abuse as a marker of family disadvantage more broadly. It is hoped that therapeutic assistance in childhood will prevent or ameliorate later problems, which in turn may reduce costs in health and other domains.

This study has focused on the cost-effectiveness of two forms of treatment: individual and group therapy. Another study has shown that combined group and family network treatment may be effective (Monck et al., 1996). In a review predating the results of this study cognitive behavioural therapy (CBT) was considered to be the most effective of the possible treatment options for sexually abused children (Jones & Ramchandani, 1999). Since that review, similar findings have been reported by Deblinger, Steer and Lippmann (1999), King et al. (2000) and Deblinger, Stauffer and Steer (2001). It would be interesting to be able to compare the cost-effectiveness of CBT with psychotherapy and other treatment options, and some comparisons of outcomes can potentially be made. However, no evaluations of CBT have been identified that have included an economic component and, therefore, cost-effectiveness comparisons are not yet possible.

Limitations

This economic evaluation was retrospective in that details of service use were collected after the main study had ended. This meant that the range of services was limited to those that comprised the therapy itself. It is highly probable that the girls in the study would have also been in receipt of services from other health, education and social care agencies, and the costs reported here must be seen as underestimates. For instance, the data on educational achievement showed that, although there was improvement over the study period, the cohort of sexually abused girls still lagged behind inner-city controls (Kolvin, unpublished data) and it is likely that some of them would have been in receipt of remedial help. However, the fact that the clinical outcomes were similar between the two arms of the trial suggests that similar levels of other service use could be expected. In addition, some administrative costs may have been underestimated. For example, in one area a member of staff was employed to organise the group therapy sessions. Although the unit costs used in the analyses do include overhead elements, dedicated inputs such as those may not have been totally covered.

For ethical reasons, the study did not include a no-treatment option. Whilst this was appropriate, it does mean that we cannot say whether the gains made by girls in each arm of the trial would not also have been made by those receiving no specialist intervention.

The study was also limited in that it only measured costs (and outcomes) over a 2-year period. This is relatively long compared to the follow-up periods employed in many evaluations, but it is nevertheless possible that longer term service use and costs patterns might differ from those observed over 2 years. Also, the services included some elements that would not be provided in a routine setting. It was not appropriate to remove these as they could still have had therapeutic benefit. However, it is clear from Table 1 and Figures 1 and 2 that the extra inputs contribute very little to the overall cost and therefore the cost of a routine service would be unlikely to differ substantially from the costs reported here.

Finally, although cost-effectiveness analyses in this area are rare, this study must still be seen as small. The sample size was sufficient to show statistically significant cost differences but there must be some concern over the generalisability of the results. If future studies measure the impact of interventions on other health and social care services then sample sizes will be need to be higher due to the inevitably wider distribution of costs.

Practice implications

This study on the costs and outcomes of treating sexually abused girls suggests that child mental health services can provide useful treatments, and that group treatment is more cost-effective than individual treatment. In planning child mental health services, consideration needs to be given to the resource implications of the whole treatment package (including supervision costs) and not just the direct therapy provided. In developing group programmes, services in neighbouring areas may need to work jointly to ensure that there is a sufficient pool of cases to have a rolling programme of groups to prevent delay in offering treatment.

Acknowledgements

The clinical trial was funded by the Department of Health and the Mental Health Foundation. The economic analysis was funded by the Department of Health.

References

Cotgrove, A. J., & Kolvin, I. (1993). The long term effects of child sexual abuse. *Hospital Update, September*, 401–406.

Deblinger, E., Steer, R. A., & Lippmann, J. (1999). Two-year follow-up study of cognitive behavioral therapy for sexually abused children suffering post-traumatic stress symptoms. *Child Abuse and Neglect, 23*, 1371–1378.

Deblinger, E., Stauffer, L. B., & Steer, R. A. (2001). Comparative efficacies of supportive and cognitive behavioral group therapies for young children who have been sexually abused and their nonoffending mothers. *Child Maltreatment, 6*, 332–343.

Jones, D. P. H., & Ramchandani, P. (1999). *Child sexual abuse: Informing practice from research*. Abingdon: Radcliffe Medical Press.

King, N. J., Tonge, B. J., Mullen, P., Myerson, N., Heyne, D., Rollings, S., Martin, R., & Ollendick, T. H. (2000). Treating sexually abused children with posttraumatic stress symptoms: A randomized clinical trial. *Journal of the American Academy of Child and Adolescent Psychiatry, 39*, 1347–1355.

Knapp, M. R. J. (1997). Economic evaluation and interventions for children and adolescents with mental health problems. *Journal of Child Psychology and Psychiatry, 38*, 3–26.

Monck, E., Bentovim, A., Goodall, G., Hyde, C., Lwin, R., Sharland, E., & Elton, A. (1996). *Child sexual abuse: A descriptive and treatment study.* London: Stationery Office.

Mooney, C., & Duval, R. (1993). *Bootstrapping: A nonparametric approach to statistical inference.* London: Sage Publications.

Mullen, P. E., Martin, J. L., Anderson, J. C., Romans, S. E., & Herbison, G. P. (1993). Childhood sexual abuse and mental health in adult life. *British Journal of Psychiatry, 163*, 721–732.

Netten, A., Dennett, J., & Knight, J. (1999). *Unit costs of health and social care.* Canterbury: PSSRU.

Romeo, R., Byford, S., & Knapp, M. R. J. (in press). A systematic review of economic evaluations of child and adolescent mental health services. *Journal of Child Psychology and Psychiatry.*

Rushton, A., & Miles, G. (2000). A study of a support service for the current carers of sexually abused girls. *Journal of Clinical Child Psychology and Psychiatry, 5*, 411–426.

Scott, S., Knapp, M. R. J., Henderson, J., & Maughan, B. (2001). Financial cost of social exclusion: Follow-up study of antisocial children into adulthood. *British Medical Journal, 323*, 191–194.

Trowell, J., Berelowitz, M., & Kolvin, I. (1995). Design and methodological issues in setting up a psychotherapy outcome study with girls who have been sexually abused. In M. Aveline & D. Shapiro (Eds.), *Research foundations of psychotherapy practice.* Chichester: Wiley.

Trowell, J., & Kolvin, I. (1999). Lessons from a psychotherapy outcome study with sexually abused girls. *Clinical Child Psychology and Psychiatry, 4*, 79–89.

Trowell, J., Kolvin, I., Weeramanthri, T., Sadowski, H., Berelowitz, D., Glasser, D., & Leitch, I. (2002). Psychotherapy for sexually abused girls: Psychopathology outcome findings and patterns of change. *British Journal of Psychiatry, 180*, 234–247.