

Young Children's Ability to Engage in Cognitive Therapy Tasks: Associations With Age and Educational Experience

Liz Doherr

Cambridgeshire and Peterborough Mental Health Care Trust, Cambridge, UK

Shirley Reynolds

University of East Anglia, Norwich, UK

Julia Wetherly and Elin H. Evans

Norfolk Mental Health Care Trust, Norwich, UK

Abstract. In two linked studies we examined children's performance on tasks required for participation in cognitive therapy. In Study 1 we piloted some new tasks with children aged 5 to 11 years. In study 2 the effects of IQ, age and educational experience were examined in children aged 5 to 7 years. In study 1, 14 children aged 5 to 11 completed three tasks related to cognitive therapy; generating post-event attributions, naming emotions, and linking thoughts and feelings. Study 2 used a between-subjects design in which 72 children aged 5, 6, or 7 years from two primary schools completed the three tasks and the Block Design and Vocabulary sub-tests from the WISC III or WPPSI-R. Children were tested individually during the school day. All measures were administered on the same occasion. In study 2 administration order of the cognitive therapy task and the WISC III/WPPSI-R were randomized. The majority of children demonstrated some ability on each of the three tasks. In study 2, performance was associated with school and with IQ but not with age. There were no gender differences. Children attending a school with an integrated thinking skills programme and those with a higher IQ were more successful on the cognitive therapy tasks. These results suggest that many young children could engage in cognitive therapy given age-appropriate materials. The effects of training in relevant meta-cognitive skills on children's ability to use concepts in CBT may warrant further research.

Keywords: Cognitive behaviour therapy, young children, cognitive development.

Introduction

Recent epidemiological research indicates that many young children experience mental health problems (e.g. Office for National Statistics, 1999). There is a need to develop suitable therapeutic methods for this age group. Cognitive therapy is an effective treatment for

Reprint requests to Shirley Reynolds, School of Medicine, Health Policy and Practice, University of East Anglia, Norwich NR4 7QH, UK. E-mail: s.reynolds@uea.ac.uk

© 2005 British Association for Behavioural and Cognitive Psychotherapies

adults with a wide range of psychological problems (e.g. Gloaguen, Cottraux, Cucherat and Blackburn, 1998; Roth and Fonagy, 1996) and there is promising evidence for its effectiveness with adolescents and older children (e.g. Flannary-Schroeder and Kendall, 2000; Kendall, 1993). A core requirement of cognitive therapy is that individuals can think about thinking, recognize that thoughts (cognitions), feelings and behaviour are different concepts, and understand that they are inter-related. Cognitive therapy is collaborative and requires clients to actively participate in therapy tasks and activities. Therefore cognitive therapy with young children is limited if children have not developed meta-cognitive skills, i.e. the ability to think about their own thinking processes. The aims of this paper are to pilot three tasks related to cognitive therapy with children and, subsequently, to examine young children's performance in relation to their age and educational experience.

Although Piaget (e.g. 1952) suggests that children develop the ability to reflect and manipulate ideas in the formal operational stage of development, i.e. from age 12, other researchers have challenged this. For example, Spensley and Taylor (1999) reported that from 4 years children begin to be able to reflect on their cognitive processes. Similarly, Flavell and colleagues have found that between 5 and 8 years children develop considerable knowledge about thinking. By 8 years, they can distinguish thinking from other internal processes such as seeing and knowing (Flavell, Green and Flavell, 1995), recognize that thinking cannot be voluntarily suppressed (Flavell, Green and Flavell, 1998), and are aware that people have limited control over their thought processes (Flavell, Green and Flavell, 1999). Quakley and colleagues have examined the development of children's ability to discriminate between thoughts, feelings and behaviours. Quakley, Coker, Palmer and Reynolds (2003) found that 80% of children aged 7 and 8 years could discriminate between thoughts and behaviours compared with 100% of 10 to 11-year-old children. For younger children, but not older children, performance was associated with verbal IQ. In children aged 4 to 7 years Quakley, Reynolds and Coker (2004) found a significant effect of age in the ability to discriminate amongst thoughts, feelings and behaviours. Providing visual cues (puppet and posting boxes) significantly improved performance.

Some developments of cognitive therapy with children have included appropriate developmental adaptations. For example, "Coping Cat" is a treatment package for anxiety in children aged 6–13 years in which cartoon-like "thought bubbles" are used to help children identify and then record their thoughts (Kendall, 1990). Coping Cat also includes a large proportion of behavioural elements and is better described as cognitive behaviour therapy (CBT). The literature also contains examples of individual studies that report the successful use of cognitive-behavioural techniques with children as young as 5 years of age (e.g. King et al., 1998; Eisen and Silverman, 1998; Kane and Kendall, 1989; Ronen, 1993; Ronen, Rahav and Wozner, 1995).

There have also been a limited number of randomized controlled trials (RCTs), although most of these have included adolescents and children over 9 years of age. Kendall (1994) conducted an RCT of CBT for anxious children aged 9 to 13. After CBT, parents and children reported reductions in distress and increased coping, and 64% of the CBT group no longer met diagnostic criteria. Kendall et al. (1997) conducted a second RCT with children aged 9 to 13 years. Again they reported significant gains in the CBT group, as reported by children, parents and teachers. These gains were maintained at 1-year follow-up.

The treatment of depression using CBT indicates that for teenagers CBT can be effective (Harrington, Whittaker and Shoebridge, 1998). For younger children, less is known. Weisz,

Thurber, Sweeney, Proffitt and Le Gagnoux (1997) assigned mildly and moderately depressed children in grades 3 to 6 (approximately 8 to 11 years old) to 8 session group-CBT or to a control group. The CBT intervention included behavioural components (e.g. increasing pleasurable activities) and cognitive components (e.g. identifying and modifying depressogenic thoughts). Children in the CBT group reported significant improvements in self-report measures of depression and were rated as less depressed by interviewers blind to the experimental condition.

Meta-analyses of cognitive behavioural work with children suggest that age is associated with outcome. Dush, Hirt and Schroeder (1989) reported that self-statement modification was superior to no treatment and placebo treatment conditions in the treatment of child behaviour disorders. However, the effect size was associated with age, indicating that older children benefited more from this approach than the younger children. Durlak, Fuhrman and Lampman (1991) examined 64 studies in which CBT was defined as any treatment that sought overt behavioural change by teaching children to change thoughts and thought processes in an overt active manner. The gains produced by CBT were large and comparable to those found for adults (Lambert, Shapiro and Bergin, 1986). Durlak et al. (1991) proposed that children's cognitive developmental level (as measured by their age) would moderate the effect size of CBT with children. Analysis confirmed this, finding that older children (aged 11–13) benefited more from CBT than did younger children (aged 5–11).

In summary, the literature suggests that CBT may be effective with children, but that where evidence is available, younger children derive less benefit. This conclusion can be further qualified by the lack of specificity of most interventions evaluated. The majority of studies examining the efficacy of CBT with children have investigated the outcome of treatment programs that use just one or two techniques that could be termed “cognitive” in the context of a broadly behavioural content. Thus the extent to which *cognitive* therapy and the cognitive components of CBT can be used with children remains unclear (Stallard, 2002).

Establishing which specific cognitive techniques are central is problematic, firstly because of the wide range of techniques and secondly because it is not possible to determine which abilities are needed to engage in therapy and which could be learnt through the therapy itself. In the absence of any clear guidance from the literature, we undertook two studies in which we examined the ability of young children to engage in cognitive tasks that seemed to have validity in the delivery of CBT. We examined performance on three tasks: a) the ability to generate alternative post-event attributions for events; b) the ability to identify different emotions; and c) the ability to connect thoughts and feelings. Kendall (1991) suggests that the generation of post-event attributions is required in CBT and indicates that an individual can engage in disputational strategies. To assess this ability we adapted a task from Greenberger and Padesky (1995). Being able to identify and name different emotions is essential if children are to monitor their own emotional states and engage in meaningful discussion about their feelings. The inclusion of a task requiring children to link thoughts and feelings was based on a technique already used in CBT with children (Young and Brown, 1996) and entirely consistent with the cognitive model (Friedberg and McClure, 2002). However, we do not presume that the cognitive abilities outlined above are sufficient for children to engage in CBT because successful engagement in CBT also requires non-specific attributes such as the motivation to change and a willingness to work collaboratively.

Study 1

The evidence that children can begin to engage in thinking about thinking by about 8 years of age (e.g. Flavell et al., 1999) is persuasive. However, the generalizability of these results is questionable because of the strong bias towards recruiting children from middle class backgrounds (e.g. from child care centres affiliated to a university). These are not representative of the population of children, and according to Cutting and Dunn (1999), children's socio-economic background is an important variable in determining their cognitive development.

In this pilot study our aim was to examine children's performance on three new tasks that have direct applicability to the requirements of cognitive therapy, i.e. generating post-event attributions, naming different emotions, and linking thoughts and feelings. In this study we aimed to recruit children who were not socially advantaged to increase the generalizability of the results. Children aged 5 to 11 years were recruited to indicate the association between age and performance.

Method

Participants

Fourteen children (8 girls) were recruited from two schools in Norwich, Norfolk. One school was a First School (children aged 5 to 8) and the other was a Middle School (children aged 8 to 12). Head teachers were each asked to select 7 "average" children. Written consent was obtained from the guardians or parents of each child. The age range of the children was from 5 years 3 months to 11 years 7 months.

Measures

Generating alternative attributions (Task A). This section comprises five brief scenarios (see Appendix 1 for details) adapted from Greenberger and Padesky (1995), for example, "In the playground James shouts 'hello' at his friend, but his friend just runs past". Each scenario was read to the child who was then asked, "Why do you think his friend ran past without saying hello back?" and was prompted to generate as many different explanations (post-event attributions) as possible. After the first explanation, each alternative explanation was scored. To be deemed an alternative a change in word structure was not sufficient. Thus, if an initial explanation for the action of the friend described above was "because he was in a rush", the explanation "because he was rushing" would not count as an alternative but "because he was being chased" would count as an alternative. Three of the scenarios had girl characters and two had boys. The task was scored by adding up the number of alternative explanations generated by a child for all 5 scenarios.

Naming different emotions (Task B). Children were asked to name as many different emotions or "feelings" as they could. No upper limit was imposed and the total number of emotion words generated by the child determined the score.

Connecting thoughts and feelings (Task C). In this task a pictorial diary sheet format was used as described by Young and Brown (1996) and shown in Figure 1. The diary sheet was explained to the child by indicating what each part represented (e.g. "The thought bubble shows what the person is thinking"). A hypothetical situation was described to the participant

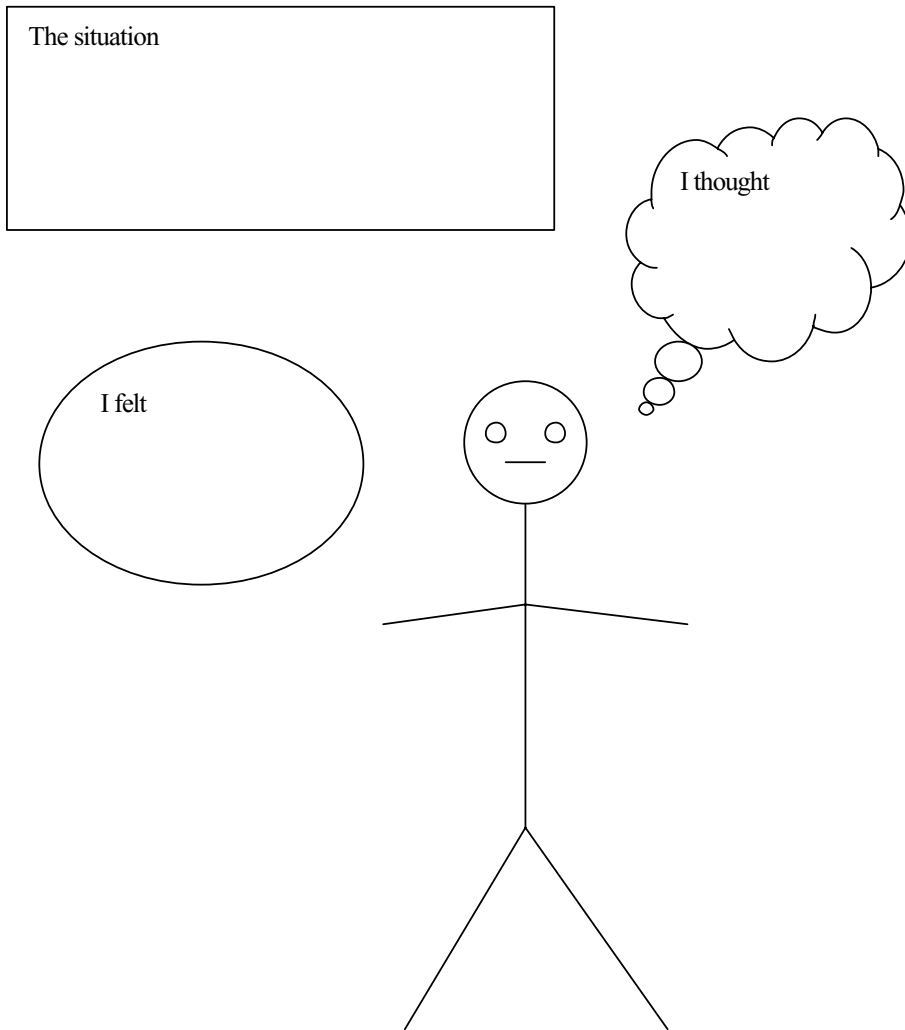


Figure 1. Pictorial diary sheet from Young and Brown (1996)

(e.g. “Arriving at a friend’s birthday party”), and they were then asked to imagine having a certain thought in this situation (e.g. “I don’t want Mum to leave”). They were then asked how having that thought might make them feel. After each response the child was asked why they would feel that way. This question was included to enable the researcher to decide if the child had connected the feeling to the thought, or if they had generated a feeling based purely on consideration of the situation presented. A demonstration was completed with the child before the test items. Six scenarios were presented to the child (see Appendix 2). Each scenario was scored as 1 if the participant correctly connected a feeling with the thought, or 0 if they did not. The score for Task C was the number of scenarios where the feeling generated was connected to the thought presented.

Procedure

Children were assessed individually in a small classroom during the school day. They were invited to take part and told that they could stop at any time. The three tasks were presented in the same order, i.e. generate post event attributions (Task A), naming emotions (Task B) and linking thoughts and feelings (Task C). Within tasks A and C the order in which individual scenarios were presented was determined by the child who selected numbered cards on which the scenarios were written. This procedure served two important purposes. First, it ensured that scenarios were presented randomly, and second it helped to engage the child. Measures were administered by trainee clinical psychologists (JW and LD) in a standard way and full instructions can be obtained from the authors.

Results

As this was a pilot study the results are presented descriptively. The mean score for the post-event attribution task was 9.6 ($SD = 3.4$), with a range of 6 to 16. Children named a mean of 4.1 emotions ($SD = 2.0$, range 1–8). All children in the sample were able to correctly link a thought and a feeling in 3 out of the 6 scenarios presented to them (mean = 4.9, $SD = 1.1$). Correlations between the tasks were as follows: generating post-event attributions and naming emotions, $r = 0.41$, post-event attributions and linking thoughts to feelings, $r = 0.42$, and naming emotions and linking thoughts to feelings, $r = 0.15$. Cronbach alpha for the sum of the tasks was 0.71 indicating good internal consistency.

There was a significant correlation between age and total score, $r = 0.55$, $p < 0.05$. Means for boys and girls were similar (18.66 and 18.62 respectively) and were not significantly different ($U = 18.50$).

Discussion

All the children in the study were able to generate an alternative explanation, and to connect thoughts with feelings in at least half of the scenarios presented to them. The vast majority could name at least two emotions. Older children scored more highly than younger children. The tasks successfully engaged the children and were straightforward to administer.

These results suggest that some children as young as 5 years can engage in some cognitive therapy tasks. However, this was a small sample. In addition, during the study we became aware of an unusual feature of the school from which the younger children were recruited. This school placed a specific emphasis on developing children's thinking skills. In particular, an unusual feature of the school curriculum was that all year groups received regular philosophy classes using a programme based on the work of Murriss (1992) and Lipman (1985), both of whom have promoted the development of children's thinking skills in the school curriculum. Thus this programme may have advanced the abilities of the children from this school.

Study 2

Because the results of Study 1 demonstrated that some children aged 5 to 7 years could perform the cognitive therapy tasks, Study 2 was designed to involve a larger sample of younger children. The relatively strong performance of the younger children in Study 1 was difficult to interpret so in Study 2 we compared two schools. One was the school in Study 1,

which provided integrated philosophy lessons; the other school used the standard, national curriculum. We addressed two research questions:

1. Do children between 5 and 7 years possess three cognitive abilities used in cognitive therapy, i.e. generating alternative post-event attributions, identifying different emotions, and connecting thoughts with feelings?
2. Are age, gender or teaching method associated with the degree of ability demonstrated by children after adjusting for IQ?

Method

Participants

Children were recruited from two schools in Norwich, UK. One (School A) used a teaching skills programme (i.e. philosophy lessons) alongside the normal curriculum. The second (School B) used the standard national curriculum and was selected because it matched School A in terms of its catchment area (Haynes and Gale, 1997). Matching variables for the schools were: unemployment rate, number of unemployed with dependent children, number of lone parent households, number of households not owner occupied, and level of social deprivation as measured by the Townsend Index (Townsend, Phillimore and Beattie, 1988). In addition, recent OFSTED reports indicated that the schools were similar with respect to the following factors: size of classes, pupil to teacher ratio, level of pupil attainment and the teaching quality. Both schools taught pupils from 4 years to 8 years of age. Children aged 5, 6 or 7 years were eligible to participate in the study.

Headteachers at both schools were contacted and gave consent for the study. At each school 80 children were randomly selected from the class registers. Each child on the register was allocated a number and these were selected using random number tables. Information sheets were sent to the parent or guardian of each randomly selected child and consent from parents was required for the child to participate. The response rates were 54% ($n = 43$) at school A and 64% ($n = 51$) at school B. The 94 children for whom consent was obtained were divided into 12 groups by age, gender and school. To ensure the design was balanced children were randomly selected from each group ensuring that there were 6 boys and 6 girls from each school who were 5, 6 and 7 years old. A total of 72 children took part in the study. Parents of all children who gave informed consent were informed if their child had been selected to participate and thanked for their help.

Measures

Cognitive therapy tasks. The tasks used in Study 1 were also used in Study 2. Tasks A and C were unchanged. Task B was amended to include an element of emotional recognition. As previously, children were asked to name all the emotions that they could. The number of spontaneously named emotions was recorded. Next they were shown four photographs of a child displaying different emotions; sad, happy, angry and scared (Kallache, 1993), and asked to name the emotions displayed. Acceptable responses included words that approximated the emotion depicted, such as “upset” or “down” for sad. The number of correctly named emotions was recorded. Then, each child was shown four cards with the words “sad”, “happy”, “angry” and “scared” written on them and asked to place these below the face that best matched the

word on the card. The words were also read aloud to the child and repeated as necessary or at the child's request. The number of emotions correctly matched was recorded. The total score for Part B was the sum of the number of emotions spontaneously named, the number of emotions correctly identified and the number of labels matched with the faces. If the child correctly identified all the emotions in the photographs they were credited with a score of 4 for matching the cards to the photograph.

The totals for Parts A, B and C were summed to give a total. In a separate study, O'Shea (2002) examined the inter-rater reliability of the tasks and found it to be excellent: $r = .96$ for part A, $r = .98$ for Part B, and $r = .98$ for Part C.

Wechsler Intelligence Scale for Children (WISC III^{UK}, Wechsler, 1992) – Short form or Wechsler Preschool and Primary Scale of Intelligence (WPPSI-R^{UK}, Wechsler, 1990) – short form. Short forms of the WISC III or the WPPSI-R were administered to each child. As recommended by Sattler (1982) Vocabulary and Block Design sub-tests were used. These two sub-tests have excellent reliability, correlate highly with the Full Scale IQ over a wide age range, and are good measures of general intelligence. Reliability of this shortened form was reported to be 0.91, and the validity 0.86 (Atkinson and Yoshida, 1989). Age scaled scores were converted to estimated Full Scale IQ using a conversion chart (Brooker and Cyr, 1986). Children under 71 months were assessed with the WPPSI-R and children aged over 72 months were assessed with the WISC-III.

Procedure

Children were assessed individually at their school. The presentation of the cognitive therapy tasks and IQ was randomized. All measures were administered in a standard way by LD, a trainee clinical psychologist, and full written instructions can be obtained from the authors.

Results

Data analytic strategy

This study examined two related questions. The first concerned the extent to which young children can engage in some tasks of cognitive therapy. First, we examined mean scores on the individual cognitive therapy tasks and on the sum of the tasks. The second research question concerned associations between age, gender, IQ and teaching method and children's performance. Gender differences were examined using independent *t*-tests. Associations with IQ were examined using ANOVA and correlations. Differences between ages and schools were examined using analysis of variance (ANOVA) and co-variance (ANCOVA) with IQ as the covariate. Statistical significance was at the 5% level ($p < .05$) throughout the analyses. Data were analysed using the Statistical Package for the Social Sciences (SPSS) for Windows (Version 9.0) (SPSS Inc., Chicago, Illinois, United States of America).

Children's abilities to engage in the tasks

Mean levels of performance on each of the cognitive therapy tasks are shown in Table 1. At all ages most children demonstrated some ability in each of the three tasks. Thus, for example, the mean score for 5-year-olds indicated that they made over 6 alternative post-event attributions for the 5 scenarios presented, and could link thoughts and feelings in 4 of the 6 scenarios

Table 1. Cognitive therapy ability (CTA) scores by age

	Part A (post event attributions)			Part B (emotions)			Part C (link thoughts and feelings)			Total score		
	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range	Mean	SD	Range
5-year-olds (<i>n</i> = 24)	6.88	3.69	0–12	9.33	1.63	6–12	4.13	1.78	0–6	20.33	6.05	8–29
6-year-olds (<i>n</i> = 24)	9.54	3.96	1–16	10.71	2.49	7–19	4.91	1.59	0–6	25.25	6.46	12–37
7-year-olds (<i>n</i> = 24)	7.88	4.30	0–15	10.63	2.08	6–15	4.33	1.69	0–6	22.79	7.05	6–34
All children (<i>n</i> = 96)	8.10	4.08	1–16	10.20	2.16	6–19	4.46	1.69	0–6	22.79	6.75	6–37

presented. There was no difference in the performance of girls and boys. Mean total score for boys was 23.8 ($SD = 7.2$) and for girls 21.8 ($SD = 6.2$), $t = 1.31$, (1, 70), $p < .20$. There were also no gender differences in any of the sub-tests.

Association of performance with age, gender, IQ and educational experience

A 2-way ANOVA with age and school as the independent variables and total score on the cognitive therapy tasks as the dependent variable was used to see if age and school attended were associated with performance on the cognitive therapy tasks. There was a significant main effect of school, $F [1, 66] = 36.89$, $p < .001$, and a significant main effect of age, $F [2, 66] = 5.17$, $p < .01$. There was no significant interaction of school and age ($F [2, 66] = 1.04$, $p = .358$). Figure 2 shows that the 6-year-olds outperformed the other two age bands and that school A scored higher than school B at all ages. Post hoc Bonferroni tests revealed that the only significant age difference was between 6-year-olds and 5-year-olds.

The effect of age on performance was further explored. Mean IQ for the sample was 98.1 ($SD = 14.41$), close to the expected population mean. The mean IQ for 5-year-olds was 94.46, for 6 year olds 105.04, and for 7 year olds 94.83. A 2-way ANOVA with school and age as the independent variables and IQ as the dependent variable revealed a significant main effect of age, $F [2, 66] = 4.68$, $p < .05$, a non-significant main effect of school, $F [1, 66] = 2.27$, $p = .136$, and a non-significant age x school interaction, $F [2, 66] = 1.08$, $p = .346$. Post-hoc Bonferroni tests revealed that the 6-year-olds had significantly higher IQ scores than the younger and the older children. Next the correlation between the sum of the cognitive therapy tasks and IQ was examined using Pearson product-moment correlation. There was a significant correlation between IQ and the sum of the three cognitive therapy tasks, $r = 0.433$, $p < 0.01$. Correlations between the verbal and performance age scaled scores and the sum of the cognitive therapy tasks were $r = 0.436$, $p < .01$ and $r = 0.332$, $p < .01$ respectively.

The relationship between age, educational experience and performance on the cognitive therapy tasks was therefore examined with IQ as a covariate in a 2-way ANCOVA. This indicated a significant main effect of school, $F [1, 65] = 74.88$, $p < .001$, a non significant main effect of age, $F [2, 65] = 2.46$, $p = .094$, and a non-significant age x school interaction, $F [2, 65] = 0.802$, $p = .453$. Thus, after controlling for IQ, only school attended had a significant effect on performance of cognitive therapy tasks. Children attending the school with the

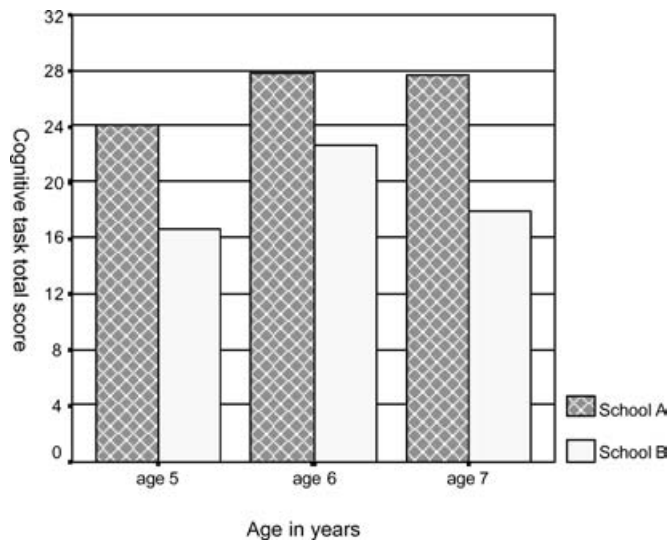


Figure 2. Mean Cognitive Therapy Ability (CTA) total by age and school

thinking skills programme obtained higher scores on the cognitive therapy tasks than children attending the school with the conventional curriculum.

Discussion

This study aimed to examine the performance of young children (aged 5, 6, and 7 years) on cognitive skills that are required in cognitive therapy, and to examine variables associated with these skills. The results suggested that most children aged 5 to 7 years could generate post-event attributions, name and recognize emotions, and link thoughts and feelings. There were no gender differences in performance. There was a significant association between IQ and performance. After controlling for IQ there was no association of performance with age but there was a significant difference between the schools.

These results have important implications for the development of cognitive therapy with young children, who some authors have argued are poor candidates for cognitive therapy because of their cognitive immaturity. The tasks used in this study were typical of those used in standard cognitive therapy but, as suggested by Ronen (1992), were adapted (in terms of content and method) for use with young children rather than with adults. Thus, the implication of these results is that with adequate adjustment some tasks of cognitive therapy may be successfully used with children as young as 5 years old if other non-specific factors such as motivation and ability to collaborate are present.

The association of performance with the school attended is of interest. Children who were exposed to a “thinking skills programme” at school performed significantly better than children who were not. Both schools were in areas of relative social deprivation and children participating in the study had IQ scores in the average range. Thus, these children were broadly representative of the population. However, the interpretation of this result is problematic as, of course, children could not be randomly allocated to the school and thus other unknown

factors may have influenced the results. Although the schools were matched on a number of salient features, including the quality of teaching, only a true experiment could determine any causal relationship. In addition, the rating of the children's performance on the cognitive tasks was not blind. Therefore we cannot rule out the possibility that the difference between the performance of children in the two schools was influenced by inadvertent bias. In any subsequent study raters blind to the educational philosophies of the schools should be used, or if this is impractical rater bias should be systematically examined.

Second, this was a study of non-referred children in the community and may not generalize to clinically referred children. For example, children with mental health problems may be less able to perform these tasks either as a direct result of their problems (e.g. attentional or motivational deficits), or because deficits in the ability to make post event attributions, name emotions and/or link thoughts and feelings may constitute an early vulnerability to mental health problems. Thus it would be desirable to administer the same tasks to clinically referred children to assess their abilities. If clinically referred children are poorer at the cognitive therapy tasks, this would have implications for the choice of therapy and/or might indicate that education in thinking skills should be incorporated into therapy.

Finally, the validity of the tasks used in this study is unclear. Children participating in the study engaged fully in the tasks and appeared to enjoy and understand them. The tasks have good face validity and were based on current clinical practice. However, they are recently developed, tap only a sub-set of the cognitive demands of cognitive therapy, and we do not yet know how well these criteria would translate into the ability to engage in the real-life complexities of cognitive therapy. There is thus a need to trial the cognitive therapy tasks with clinical populations to establish norms for this group and to determine whether the tasks have predictive validity. The tasks could also be used to assess children before therapy and may highlight areas of meta-cognitive deficit that could be targeted during treatment. For example, children who are poor at linking thoughts and feelings at the start of therapy may need help in developing this skill before they can engage in and benefit from standard cognitive elements of therapy.

Acknowledgements

Shirley Reynolds was supported by the Leverhulme Trust during the preparation of this article. We are grateful to two anonymous reviewers for constructive comments, and to the children who participating in this study, their parents and teachers.

References

- Atkinson, L. and Yoshida, G.** (1989). A BASIC program for determining reliability and validity of sub-test combination forms. *Educational and Psychological Measurement*, 49, 141–143.
- Brooker, B. H. and Cyr, J. J.** (1986). Tables for clinicians to convert WAIS-R short forms. *Journal of Clinical Psychology*, 42, 983–987.
- Cutting, A. L. and Dunn, J.** (1999). Theory of mind, emotion understanding, language, and family background: individual differences and interrelations. *Child Development*, 70, 853–865.
- Durlak, J. A., Fuhrman, T. and Lampman, C.** (1991). Effectiveness of cognitive-behavioural therapy for maladapting children: a meta-analysis. *Psychological Bulletin*, 110, 204–214.
- Dush, D. M., Hirt, M. L. and Schroeder, H. E.** (1989). Self-statement modification in the treatment of child behaviour disorders: a meta-analysis. *Psychological Bulletin*, 106, 97–106.

- Eisen, A. R. and Silverman, W. K.** (1998). Prescriptive treatment for generalized anxiety disorder in children. *Behaviour Therapy*, 29, 105–121.
- Flannery-Schroeder, E. C. and Kendall, P. C.** (2000). Group and individualized cognitive-behavioural therapy for youth with anxiety disorders: a randomized control trial. *Cognitive Therapy and Research*, 24, 251–278.
- Flavell, J. H., Green, F. L. and Flavell, E. R.** (1995). Young children's knowledge about thinking. *Monographs of the Society for Research in Child Development*, 60, v–96.
- Flavell, J. H., Green, F. L. and Flavell, E. R.** (1998). The mind has a mind of its own: developing knowledge about mental uncontrollability. *Cognitive Development*, 13, 127–138.
- Flavell, J. H., Green, F. L. and Flavell, E. R.** (1999). Development of intuitions about the controllability of different mental states. *Cognitive Development*, 14, 133–146.
- Friedburg, R. D. and McClure, J. M.** (2002). *Clinical Practice of Cognitive Therapy with Children and Adolescents: the nuts and bolts*. New York: Guilford Press.
- Gloaguen, V., Cottraux, J., Cucherate, M. and Blackburn, I. M.** (1998). A meta-analysis of the effects of cognitive therapy in depressed patients. *Journal of Affective Disorders*, 49, 59–72.
- Greenberger, D. and Padesky, C. A.** (1995). *Mind Over Mood: change how you feel by changing the way you think*. London: Guilford Press.
- Harrington, R., Whittaker, J. and Shoebridge, P.** (1998). Psychological treatment of depression in children and adolescents: a review of treatment research. *British Journal of Psychiatry*, 173, 291–298.
- Haynes, R. and Gale, S.** (1997). *Atlas of Health Needs Indicators in Norwich*. University of East Anglia: The School of Health Policy and Practice.
- Kallache, C.** (1993). *Jeux de Visages*. Paris: Nathan.
- Kane, M. T. and Kendall, P. C.** (1989). Anxiety disorders in children: a multiple baseline evaluation of a cognitive-behavioural treatment. *Behavior Therapy*, 20, 499–508.
- Kendall, P. C.** (1990). *Coping Cat Workbook*. Ardmore, PA: Workbook Publishing.
- Kendall, P. C.** (1991). *Child and Adolescent Therapy: cognitive behavioural procedures*. New York: McGraw Hill.
- Kendall, P. C.** (1993). Cognitive behavioural therapies with youth: guiding theory, current status and emerging developments. *Journal of Consulting and Clinical Psychology*, 61, 235–247.
- Kendall, P. C.** (1994). Treating anxiety disorders in children: results of a randomised clinical trial. *Journal of Consulting and Clinical Psychology*, 62, 100–110.
- Kendall, P. C., Flannery-Schroeder, E., Panichelli-Mindel, S. M., Southam-Gerow, M., Henin, A. and Warman, M.** (1997). Therapy for youths with anxiety disorders: a second randomised clinical trial. *Journal of Consulting and Clinical Psychology*, 65, 366–380.
- King, N. J., Tonge, B. J., Heyne, D., Pritchard, M., Rollings, S., Young, D., Myerson, N. and Ollendick, T. H.** (1998). Cognitive behavioural treatment of school-refusing children: a controlled evaluation. *Journal of the American Academy of Child and Adolescent Psychiatry*, 37, 395–403.
- Lambert, M. J., Shapiro, D. A. and Bergin, A. E.** (1986). The effectiveness of psychotherapy. In S. L. Garfield and A. E. Bergin (Eds), *Handbook of Psychotherapy and Behavior Change* (3rd ed.). New York: Wiley.
- Lipman, M.** (1985). Thinking skills fostered by philosophy for children. In J. W. Segal, S. F. Chipman and R. Glaser (Eds), *Thinking and Learning Skills: relating instruction to research* (pp. 83–108). Hillsdale, NJ: Lawrence Erlbaum Associates.
- Murris, K.** (1992). *Teaching Philosophy with Picture Books*. London: Infonet Publishers.
- Office for National Statistics** (1999). *Mental Health of Children and Adolescents in Great Britain*. London: Department of Health, Government Statistical Service.
- O'Shea, N.** (2002). *Do Age or Previous Teaching Method have an Effect on Children's Cognitive Abilities*. Unpublished ClinPsyD thesis, University of East Anglia.
- Piaget, J.** (1952). *The Origins of Intelligence in the Child*. London: Routledge and Kegan Paul.

- Quakley, S., Coker, S., Palmer, K. and Reynolds, S.** (2003). Can children distinguish between thoughts and behaviours? *Behavioural and Cognitive Psychotherapy*, 31, 159–168.
- Quakley, S., Reynolds, S. and Coker, S.** (2004). The effect of cues on young children's abilities to discriminate amongst thoughts, feelings and behaviours. *Behaviour Research and Therapy*, 42, 343–356.
- Ronen, T.** (1992). Cognitive therapy with young children. *Child Psychiatry and Human Development*, 23, 19–30.
- Ronen, T.** (1993). Intervention package for treating encopresis in a 6-year-old boy: a case study. *Behavioral Psychotherapy*, 21, 127–135.
- Ronen, T., Rahav, G. and Wozner, Y.** (1995). Self-control and enuresis. *Journal of Cognitive Psychotherapy*, 9, 249–258.
- Roth, A. and Fonagy, P.** (1996). *What Works for Whom? A critical review of psychopathology research*. New York: Guilford Press.
- Sattler, J. M.** (1982). *Assessment of Children* (3rd ed.) San Diego: Jerome M. Sattler Publishers Inc.
- Spensley, E. and Taylor, J.** (1999). The development of cognitive flexibility: evidence from children's drawings. *Human Development*, 42, 300–324.
- Stallard, P.** (2002). Cognitive behaviour therapy with children and young people: a selective review of key issues. *Behavioural and Cognitive Psychotherapy*, 30, 297–309.
- Townsend, P., Phillimore, P. and Beattie, A.** (1988). *Health and Deprivation: inequality and the north*. London: Croom Helm.
- Wechsler, D.** (1990). *Wechsler Preschool and Primary Scale of Intelligence—Revised UK Edition*. The Psychological Corporation. Harcourt Brace & Company Publishers.
- Wechsler, D.** (1992). *Wechsler Intelligence Scale for Children Third Edition UK*. The Psychological Corporation: Harcourt Brace & Company Publishers.
- Weisz, J. R., Thurber, C. A., Sweeney, L., Proffitt, V. D. and Le Gagnoux, G. L.** (1997). Brief treatment of mild to moderate child depression using primary and secondary control enhancement training. *Journal of Consulting and Clinical Psychology*, 65, 703–707.
- Young, J. and Brown, P. F.** (1996). Cognitive behaviour therapy for anxiety: practical tips for using it with children. *Clinical Psychology Forum*, 91, 19–21.

Appendix 1

Task A: Post event attributions

I want you to imagine yourself in some situations.

1. You are at your friend Mary's party. Mary's mum gives out presents to all the children except Suzy.
Why do you think Suzy didn't get a present?
That's one reason. Well done. What other reasons might there be?
Well done. What other reasons might there be? (repeated until no more are given)
2. In the playground James shouts "hello" at his friend, but his friend just runs past without saying hello back.
Why do you think his friend ran past without saying hello back?
(continues as above)
3. The teacher always asks Karen to answer questions in class.
Why do you think the teacher always asks Karen to answer the questions in class?
(continue as above)

4. Ben asks for an action man for his birthday, but his parents give him something else.
Why do you think his parents gave him something else?
(continue as above)
5. Jill asks her friend to tea but she does not turn up.
Why do you think she did not come?
(continue as above)

Appendix 2

Part C: Linking thoughts and feelings

I am going to ask you to imagine yourself in a situation having certain thoughts and ask you how having those thoughts would make you feel.

Explanation/example

The child is presented with the pictorial diary sheet (Figure 1) from Young and Brown (1996). The format of the diary sheet is explained to the child, indicating what each bit represents through the use of the following example.

Situation: Arriving at a friend's birthday party

Thought: I don't want Mum to leave

Feeling: ?

Say: Here is a picture of a person. I want you to use this picture to help you in the next task. There are no right or wrong answers, I am just interested in what you think about some things.

See on the picture, there is a space here where we can put a card to show something that is happening, a situation. Here is a card that says, "Arriving at a friend's party". We will put that in this space (put card down). And here on the picture, there is a space to put something that you might think in that situation. Here is a card that says, "I don't want mum to leave". We will put that in this thinking bubble. Now, how would you feel if you were arriving at a party and you thought I don't want mum to leave? (Child answers). Okay, good. Why would you feel (feeling given)?

The purpose of this introductory task is to demonstrate the procedure to the child. It is not scored. If the child appears confused, the instructions may be repeated once but further prompts should not be provided.

Assessment stimuli

The following situations and thoughts are written on cards, which are read out to the child and then placed, on the diary sheet.

1. Situation: You get chicken pox
Thought: I don't have to go to school

How would you feel if you thought I don't have to go to school?

Why would you feel ... (name of emotion given by child)?

2. Situation: Your mum brings you a puppy
Thought: I wish she had got me a Dalmatian puppy

How would you feel if you thought I wish she had got me a Dalmatian puppy?
Why would you feel . . . (name of emotion given by child)?

3. Situation: First day at a new school
Thought: I can't wait to meet everybody

How would you feel if you thought I can't wait to meet everybody?
Why would you feel . . . (name of emotion given by child)?

4. Situation: Your best friend invites you to a birthday party
Thought: I can't go because granddad is coming to tea

How would you feel if you thought I can't go because granddad is coming to tea?
Why would you feel . . . (name of emotion given by child)?

5. Situation: At the dentist
Thought: That's OK my teeth are fine.

How would you feel if you thought that's OK my teeth are fine?
Why would you feel . . . (name of emotion given by child)?

6. Situation: You go to the hospital to visit your mum
Thought: I've got a baby brother

How would you feel if you thought I've got a baby brother?
Why would you feel . . . (name of emotion given by child)?