

## **Website supplement for: Improving mental health through parenting programmes: Block randomised controlled trial (Patterson et al)**

### *Introduction*

Mental health problems of clinical severity affect up to 20% of all children aged 5-15 years in Great Britain<sup>1</sup> and these are now the commonest cause of severe disability in childhood.<sup>2</sup> Mental health promotion is a priority for public health in the UK<sup>3</sup> and mental health in childhood is an important determinant of mental health in adult life.<sup>4</sup> It is also an important determinant of criminality and violence.

The importance of parenting as a risk factor for mental illness both in childhood<sup>5, 6</sup> and in adulthood is well recognised.<sup>7, 8</sup> The parenting practices identified as important for the development of mental health have been investigated in a number of longitudinal studies. Authoritative parenting styles (firm, consistent discipline combined with warmth and support), in contrast to authoritarian (characterised by 'affectionless control') or permissive (neglecting) parenting, supports the development of positive mental health predicting social competence, educational success, better self-esteem and less aggression in later childhood and adolescence.<sup>9</sup>

Conversely, parenting practices characterised by little positive parental involvement with the child, harsh and inconsistent discipline, and poor monitoring and supervision predict behaviour problems in early childhood.<sup>6</sup> These practices are also an important predictor of delinquency, criminality

and violence.<sup>5</sup> The costs to society of such behaviour problems is high.<sup>10</sup> It has been proposed that there is an urgent priority to shift from reactive intervention to prevention, since the later the intervention, the costlier and less effective it is.<sup>11</sup>

Different approaches have been developed to improve parents' insight, skill and behaviour, including books, magazines such as Practical Parenting, videos<sup>12</sup> and television programmes such as the Triple P programme (Sanders, personal communication), telephone advice lines, drop in centres and parenting programmes. Two main approaches have informed the development of parenting initiatives, derived from social learning theory (behavioural programmes) and psychotherapeutic theory (relationship programmes). These approaches are used by psychologists and health visitors to coach parents in clinics and at home, and in mutual support from trained parents<sup>13</sup> as well as in group based programmes.

Group based parenting programmes, run both by professionals and by parents, are becoming increasingly popular in the UK and a range of different programmes are available.<sup>14</sup> Four recent systematic reviews, one focusing entirely on group based programmes<sup>15</sup> and three covering these programmes within wider reviews of mental health promotion and behaviour problem prevention<sup>16, 17, 18</sup> have provided evidence that group-based parenting programmes are an effective and cost-effective way to improve parenting, and that such changes have a beneficial effect on children's mental health

and behaviour. A further systematic review has shown that group based parenting programmes can also be beneficial in improving parents' mental health.<sup>19</sup>

Most trials of the effectiveness of parenting programmes have been conducted in North America, and have taken a secondary preventive (indicated) approach (working with parents of children who already have behaviour problems) or a selective primary preventive approach working with parents at high risk.<sup>15</sup> A recent study in the UK has demonstrated the effectiveness of the Webster-Stratton parenting programme in an indicated approach among parents of children who had been referred to child mental health services.<sup>20</sup>

The symptoms of mental illness show a unimodal distribution in population surveys both in children and in adults<sup>21</sup> with no clear cut-off point between 'cases' and 'normal' people. The high prevalence of mental health problems and the unimodal distribution of symptom scores provide theoretical evidence to support a universal or population based approach to prevention.<sup>22</sup> Such an approach would be in keeping with the view of many non-government organisations that mental health promotion should aim for the promotion of positive mental health – improving the mental health of 'psychiatrically normal' people as well as preventing mental illness.<sup>23</sup>

There are strong practical arguments in favour of universal approaches. These include the inefficiency of selective approaches and the avoidance of stigma associated with programmes for parents who are perceived as 'failing'.<sup>24</sup> They are also supported on the basis of observations that parenting practices which are demonstrably unhelpful for children's development<sup>25, 13</sup> are very common.<sup>26</sup>

Several of those writing on the subject<sup>18</sup> have suggested that it is important to provide a range of approaches - universal as well as selective and indicated.

A problem encountered by those who attempt to evaluate universal approaches to provision, however, is the lack of widely accepted measures of positive mental health. Most validated measures have been developed among clinical populations, and these measures have important 'floor' effects when used in trials of the universal approach (meaning that too many children return an optimum score at the beginning of the trial, leaving no room to measure improvement).

Research into the effectiveness of group based parenting programmes in the UK is only just beginning. There are few well designed trials in diverse populations and settings,<sup>27</sup> and to our knowledge there are no randomised controlled trials of these interventions in UK primary care. In this study, we assessed the effectiveness of a primarily behavioural parenting programme,

the Webster-Stratton Parents and Children Series,<sup>28</sup> of proven effectiveness in UK clinical populations, delivered by health visitors in a general practice setting, in terms of its impact on child behaviour problems and parental mental health. We aimed to test the effectiveness of a universal approach to provision, but because of concerns with the limitations of available outcome measures we invited parents of children whose behaviour fell in the upper (worse) half of the behaviour distribution. This sample included both parents of children with behaviour problems in the clinical range, and parents whose children scored in the normal range.

*Sample size calculation to determine numbers of participants required*

The sample size calculation was based on a study of parent-child interaction therapy (PCIT).<sup>i</sup> This is similar to the intervention used in our study. The study provided sufficient data to determine the effect sizes<sup>ii</sup> for the effects demonstrated. In that study, children aged 3 to 6 years were randomly allocated to intervention or a waiting list control group. The mean length of the intervention was 13 weeks. Data at 4 months on 10 treatment versus 6 waiting list children showed a change in mean Intensity score on the ECBI from 159.5 (SD 16.6) to 117.5 (SD 18.8) in the treated group and 170.7 (SD 40.3) to 177.2 (SD 62.0) in the control group ( $p < 0.02$ ). This study therefore showed a change of over two effect sizes in the treatment group.

However, their study was examining effectiveness among children whose mean score was initially extremely high (a clinical population; mean score 159.5 compared with a clinical cut-off score of 127 and a mean total population score of 100) rather than our sample which was to be drawn from the general population. Our sample size calculation using the program 'Power and Precision'<sup>iii</sup> calculated the required number to demonstrate a change in the treatment group of one effect size (17.7 points on the Intensity scoring scale, using the pooled standard deviations). If 30 parents were recruited to each of the intervention and control groups, an effect of this magnitude would be demonstrated with 97% power (at a significance level of 0.05 (two-sided)) for a single intervention group. As there were multiple intervention groups in our study, since the intervention is recommended to be delivered in small groups of no more than 10 participants, this figure was increased to 36.

The average drop-out rate for parent training programmes is 28%.<sup>iv</sup> Allowing for this drop-out rate, the sample size (reduced to 26) would still be sufficient to obtain a power of 90% to detect an effect of 2 effect sizes.

A similar procedure, allowing for an even more conservative estimate of the likely effect size to be obtained, gave a total sample size of 100 to allow detection of an effect size of 0.6 with 80% power or 120 to detect an effect size of 0.5 (moderate effect<sup>v</sup>) with 80% power. This was chosen as the target sample size, which we estimated could be obtained from the three general practices initially selected for the survey.

## References

1. Campbell SB. Behavior problems in preschool children: A review of recent research. *Journal of Child Psychology and Psychiatry* 1995; **36(1)**: 113-149.
2. Bone M, Meltzer H. *The prevalence of disability among children, OPCS Surveys of Disability in Great Britain, Report 3*. London: HMSO, 1989.
3. Government White Paper. *Saving Lives: Our Healthier Nation*, 1999.
4. Robins LN, Rutter M, (Eds). *Straight and devious pathways from childhood to adulthood*. Cambridge: Cambridge University Press, 1990.
5. McCord W, McCord J, Howard A. Familial correlates of aggression in nondelinquent male children. *Journal of Abnormal and Social Psychology* 1961; **62(1)**: 79-93.
6. Patterson GR, DeBaryshe BD, Ramsey E. A developmental perspective on antisocial behavior. *American Psychologist*, 1989; **44(2)**: 329-335.
7. Parker G. Parental 'affectionless control' as an antecedent to adult depression: a risk factor delineated. *Archives of General Psychiatry* 1983; **40**: 956-960.

8. Oakley-Browne MA, Joyce PR, Wells JE, Bushnell JA, Hornblow AR. Adverse parenting and other childhood experience as risk factors for depression in women aged 18-44 years. *Journal of Affective Disorders* 1995; **34**: 13-23.

9. Baumrind D. Parenting styles and adolescent development. In R Learner, AC Petersen, J Brooks-Gunn (Eds). *The encyclopaedia on adolescence* (pp. 746-758). New York: Garland, 1991.

**10. Scott S, Knapp M, Henderson J, Maughan. Financial cost of social exclusion: follow up study of antisocial children into adulthood. *BMJ* 2001; 323: 191-194.**

**11. Hoghugh M. The importance of parenting in child health. *BMJ* 1998; 316: 1545.**

12. Webster-Stratton C. Videotape modelling: A method of parent education. *Journal of Clinical Child Psychology* 1981; **10**: 93-98.

13. Henricson C, Katz I, Mesie J, Sandison M, Tunstill J. *National mapping of family services in England and Wales – A consultation document*. National Family and Parenting Institute, 2001.



14. Wolfendale S, Enzig H. *Parenting education and support*. London: David Fulton Publishers, 1999.
  
15. Barlow J, Stewart-Brown S. Behaviour problems and group based parenting education programmes. *Developmental and Behavioral Pediatrics*. 2000; **21**: 356-370.
  
16. Serketic WJ, Dumas JE. The effectiveness of behavioral parent training to modify anti-social behavior in children: A meta-analysis. *Behavior Therapy* 1996; **27**: 171-186.
  
17. Lister-Sharp D, Chapman S, Stewart-Brown S, Sowden A. Health promoting schools and health promotion in schools: two systematic reviews. *Health Technology Assessment* 1999; **3**(22).
  
18. Marshall J, Watt P. *Child Behaviour Problems*. Perth: Interagency Committee on Children's Futures, 1999.
  
19. Barlow J. (In press) Individual and group-based parenting programmes for improving psychosocial outcomes for teenage parents and their children. *Cochrane protocol*. Issue 3, Oxford: Update Software. In: The Cochrane Library. 2000

**20. Scott S, Spender Q, Doolan M, Jacobs B, Aspland H. Multicentre controlled trial of parenting groups for childhood antisocial behaviour in clinical practice. *BMJ* 2001; 323: 194-197.**

21. Offord DR, Kraemer HC, Kazdin AE, Jensen PS, Harrington R. Lowering the burden of suffering from child psychiatric disorder: Trade-offs among clinical, targeted, and universal interventions. *Journal of the American Academy of Child and Adolescent Psychiatry* 1998; **37 (7)**: 686-694.

22. Rose G. *The Strategy of Preventive Medicine*. Oxford: Oxford University Press, 1992.

**23. Mental Health Foundation,  
[www.mentalhealth.org.uk](http://www.mentalhealth.org.uk)**

24. Stewart-Brown S. The public health importance of child behaviour problems. In: Buchanan A, Hudson B. *Parenting, Schooling and Children's Behaviour*. Guildford: Ashgate, 1998.

25. Leach P. *The physical punishment of children: Some input from recent research*. NSPCC Policy Practice Research Series, 1999.

26. Nobes G, Smith M. Physical punishment of children in two parent families. *Journal of Clinical Child Psychology and Psychiatry* 1997; **2**: 271-281.

**27. Webster-Stratton C. Commentary: nipping conduct problems in the bud. *BMJ* 2001; 323: 197-198.**

28. Webster-Stratton C, Hollinsworth T, Kolpacoff M. The long-term effectiveness and clinical significance of three cost-effective training programs for families with conduct problem children. *Journal of Consulting and Clinical Psychology* 1989; **57(4)**: 550-553.

29. Robinson EA, Eyberg SM, Ross AW. The standardization of an inventory of child conduct problem behaviors. *Journal of Clinical Child Psychology*. 1980; **9(1)**: 22-29.

30. Cohen J. *Statistical power analysis for the behavioural sciences*. New York: Academic Press, 1977.

31. Altman DG, Bland JM. How to randomise. *British Medical Journal* 1999; **319**:703-704.

32. Goodman R. A modified version of the Rutter parent questionnaire including extra items on children's strengths: A research note. *Journal of Child Psychology and Psychiatry*, 1994; **35(8)**: 1483-1494.

33. Goldberg DP, Hillier VF. A scaled version of the General Health Questionnaire. *Psychological Medicine*. 1979; **9(1)**: 139-145.

34. Abidin R. Parenting Stress Index: a measure of the parent-child system. In: Zalaquett C, Wood R (Eds). *Evaluating stress: A book of resources* (pp. 277-291). Lanham, MD, USA: Scarecrow Press, Inc., 1997.

35. Rosenberg M. *Conceiving the Self*. New York: Basic Books, 1979.

Patterson J, Stewart-Brown S, Mockford C, Barlow J, Pyper C. Need and demand for parenting programmes in a general practice setting. [Companion paper 1]

Patterson J, Mockford C, Barlow J, Stewart-Brown S. The impact of parenting programmes: A Qualitative study. [Forthcoming paper]

---

<sup>i</sup> Eyberg SM, Boggs SR, Algina J. Parent-child interaction therapy: A psychosocial model for the treatment of young children with conduct problem behavior and their families. *Psychopharmacology Bulletin* 1995; 31: 83-91.

<sup>ii</sup> Kazis LE, Anderson JJ, Meenan RF. Effect sizes for interpreting changes in health status. *Medical Care* 1989; 27 (3) Supplement: S178-S189.

<sup>iii</sup> Computer program. *Power and Precision*. Release 1.20 September 24, 1997.

<sup>iv</sup> Forehand R, Middlebrook J, Rogers T, Steffe M. Dropping out of parent training. *Behaviour Research and Therapy* 1983; 21(6): 663-668.

<sup>v</sup> Cohen J. *Statistical power analysis for the behavioural sciences*. 1977, New York: Academic Press.