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Identifying Abused Children Using Assessments and Observations in the Classroom: A Preliminary Study

Marijcke W. M. Veltman*
Developmental Psychiatry Section
University of Cambridge, UK
MRC Social, Genetic and Developmental Psychiatry Centre
Institute of Psychiatry
University of London, UK
Centre for Forensic and Family Psychology
University of Birmingham, UK

Kevin D. Browne
Centre for Forensic and Family Psychology
University of Birmingham, UK

The paper presents two pilot studies that attempt to identify maltreated children in the classroom. The aim of pilot study 1 was to determine whether six British physically abused children performed significantly worse than matched non-abused children on a battery of tests and rating scales over an 18-month period. The aim of pilot study 2 was to concurrently identify maltreated children from a classroom of children using standardized tests and observed negative behaviours. The method used in study 1 was a cross-comparison design with six physically abused and 12 comparison children, all between 4 and 8 years old. They were assessed over 18 months at four time-points on a battery of standardized tests and rating scales. Study 2 was based on a concurrent prediction of child abuse in a class of 30 children (18 male and 12 female) 10 years old. They were assessed on a battery of standardized assessments and by the direct observation of negative behaviour in order to predict those who were on the child protection register (CPR) for actual or suspected abuse and those who were not. The results of study 1 showed significant differences on the teacher rating scales and on a measure of sibling dependency. Study 2 used standardized assessments and identified three of five abused children. Direct observations identified one of five abused children. These two preliminary studies suggest standardized assessments are more useful than behavioural observations in identifying abused children in the classroom setting. Further confirmation is required using larger-scale investigations.

KEY WORDS: child abuse; identification; school-based assessment; classroom behaviour

'A cross-comparison design with six physically abused and 12 comparison children'

'Preliminary studies suggest standardized assessments are more useful than behavioural observations'

Both British and American data indicate that only 10–15% of all reports to the child protection services are made by

* Correspondence to: Dr M. Veltman, Developmental Psychiatry Section, Douglas House, 18b Trumpington Road, University of Cambridge, Cambridge CB2 2AH, UK. E-mail: mwmv2@cam.ac.uk

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'Teachers report fewer than a quarter of children about whom suspicions are raised'

teachers. Furthermore, it has been claimed that teachers report fewer than a quarter of children about whom suspicions are raised (Abrahams *et al.*, 1992; Kleemeier *et al.*, 1988; McIntyre, 1987).

Teachers should be aware that children who suffer maltreatment from parents at home, either in the past or the present, are at greater risk of developmental and educational problems (Cates *et al.*, 1995; Erickson *et al.*, 1989; Ewing-Cobbs *et al.*, 1998; Martin and Rodeheffer, 1976; Perry *et al.*, 1983). Therefore, teachers who are observing behavioural and academic problems should consider the possibility that the child in question may be the victim of child abuse and neglect (Cates *et al.*, 1995; Wolfe and Moske, 1983). Although the majority of maltreated schoolchildren show some developmental and educational delay (see Lynch, 1988; Veltman and Browne, 2001), teachers should also bear in mind that not all children who show developmental and educational delay have been maltreated. Therefore, teachers should approach the subject of possible child maltreatment with measured sensitivity.

Research indicates that abused and neglected children suffer considerable developmental delay and consequently tend to underachieve academically (see Trocme and Caunce, 1995). In a recent review of 92 studies concerning cognitive development, intellectual functioning, language development and academic achievement, Veltman and Browne (2001) found that 75% of those studies measuring cognitive development/intelligence indicated that abused and/or neglected children were delayed. Of studies exploring language development, 86% found delays in maltreated children. For studies reporting academic achievement, 91% found that abused and/or neglected children were underachieving.

'Developmental delay was not consistently mirrored in British studies'

Developmental delay was not consistently mirrored in British studies, as some studies showed that there was no difference between maltreated children and their siblings in cognitive delay (Lynch and Roberts, 1982; Roberts *et al.*, 1978). Furthermore, no differences emerged in language delay for maltreated children in comparison to non-maltreated children matched for socioeconomic disadvantage (Gregory and Beveridge, 1984; McFadyen and Kitson, 1996).

Cognitive development is generally measured by standardized intelligence and language tests and is strongly correlated with school achievement (Tramontana *et al.*, 1988). These tests also may be useful in the identification of developmental delay associated with child abuse and/or neglect (Carrey *et al.*, 1995; Downey and Walker, 1989; Hoffman-Plotkin and Twentyman, 1984). However, the use of intelligence tests alone would not be enough to differentiate between maltreated

children and other children who, for one reason or another, are experiencing developmental delays. Further assessments measuring specific areas of concern, such as language and speech, should be included in order to build up a more complete picture of outcomes related to maltreatment (Culp *et al.*, 1991). Assessments of emotional behaviour and self-esteem (Camras *et al.*, 1983; Kaufman and Cicchetti, 1989; Salzinger *et al.*, 1984), family dynamics and interaction (Aber and Allen, 1987; Trickett, 1993), social relations with peers (Haskett and Kistner, 1991; Howes and Eldridge, 1985; Reidy, 1977; Salzinger *et al.*, 1993) need to be included. From these previous studies, it would be expected that maltreated children would have lower IQs, display more negative and antisocial behaviours or be more withdrawn, exhibit lower self-esteem and present less secure attachment to their parents.

However, simply identifying and reporting cases of abuse does not erase the academic and behavioural deficits that scar the victims, nor does it contribute to the prevention of these deficits (Kurtz *et al.*, 1993). Teachers are in a position to have a significant normalizing impact on the cognitive profile of children living with violence (Craig, 1992) or sexual abuse (Einbender and Friedrich, 1989; Inderblitzen-Pisaruk *et al.*, 1992). Schools can do much to establish daily routines for children from disorganized homes. They can model a developmentally enhancing social environment and provide a satisfactory standard of care (Garbarino, 1987; Veltman and Browne, 2001).

'Teachers are in a position to have a significant normalizing impact'

For some time, schools have been involved in screening, assessing and intervening with emotionally disturbed young children (Maher, 1987). However, there is an apparent gap between policies and recommendations for schools on dealing with child abuse and neglect and their actual practice (Abrahams *et al.*, 1992). Teachers need to be equipped with non-intrusive mechanisms for identifying child maltreatment. The next step must be to apply this knowledge and turn research into reliable practices for education professionals and teachers to monitor children's welfare. As McIntyre (1990) emphasized:

'Apparent gap between policies and recommendations for schools on dealing with child abuse and neglect and their actual practice'

> 'Schools must accept responsibility for their abused/neglected students for many reasons: legislation mandates it, professionalism demands it, and empathy for children subjected to cruelty and pain morally and ethically necessitates it.' (p. 305)

Indeed, it is expected that teachers' duties in relation to reporting child abuse will be defined by British legislation by the end of 2003.

Aims

The aim of these preliminary investigations was to establish the feasibility of certain aspects of children's development, behaviour, personality and self-esteem being assessed in a classroom setting to identify abused children. The pilot investigations also intended to measure the reliability and validity of using specific psychometric and behavioural indicators to distinguish maltreated from non-maltreated children in the classroom.

'To investigate the effects of child abuse on "standardized" test performance and classroom behaviour'

Therefore, the objectives of the two pilot studies were to investigate the effects of child abuse on 'standardized' test performance and classroom behaviour in two ways: a cross-comparison study and a concurrent prediction study. The two studies used different samples of children and hypothesized the following: (1) six British physically abused children will perform significantly worse than 12 matched comparison children on a battery of tests and rating scales over an 18-month period; (2) that concurrently, it will be possible to identify maltreated children, from a class of 30 children, from the way they perform on standardized tests and behave in the classroom.

Methods

Ethical Considerations

Before the pilot investigations commenced, ethical and organizational approval was obtained from the local authorities, director of education and director of social services at county level. In addition, the two studies of the pilot investigation were considered and approved by a University Research Ethics Committee following the principles laid down by the British Psychological Society for research with children. Therefore, children were only involved in the study if their parents/carers gave informed consent to their participation. The parents/carers of abused children were approached and provided with written information on the aims of the study by their social worker and by their child's head teacher before consent was given. The parents/carers of non-abused children were approached and provided with written information on the aims of the study by their child's head teacher prior to their consent. It was made clear to consenting parents/carers that they could withdraw their consent at any time.

There are ethical issues raised by any process of assessment, especially where the intention is to screen for characteristics of maltreated children. Therefore, all standardized assessment

procedures piloted were selected on the basis of their being unobtrusive, age-appropriate, non-stigmatizing and potentially in the best interest of the child. It was considered that if the pilot investigations showed that there was a feasible, reliable and valid way of identifying abused children in the classroom, then these standardized procedures could facilitate early intervention. In line with Department of Health (1995, 1998a, 1999) guidelines, the assessment procedures and any resulting interventions would only be carried out in partnership with the parents/carers. These families would be regarded as 'families in priority' for support and services. Negative labels such as 'high-risk' family should be avoided and never used.

'Negative labels such as "high-risk" family should be avoided and never used'

Pilot Study 1: Cross-Comparison Study

Participants

Six physically abused children (three boys and three girls) between 4 and 8 years old participated in the study; all were classified as having suffered mild to moderate physical abuse (see Browne and Herbert, 1997, pp. 10–11) in the family. The families were recruited into the study by the local social services, in order for the parents to consider giving informed consent. The social workers selected the families on the basis that all the children had been physically abused by their mothers and were registered on the English child protection register (CPR).

Each child was then matched to two comparison non-maltreated children. The abused child's class teacher selected the comparison children to match for age, sex, socioeconomic background and educational history. It was hoped that this close matching would control for most external variables other than the actual abuse suffered. The teacher was not blind to the status of the children but the psychologist who collected the psychometric information from the children and teachers involved was blind to the children's status until the data had been analysed.

The total sample for pilot study 1, therefore, consisted of 6 abused and 12 comparison children, all aged between 4 and 8 years old.

Procedures

A systematic review of the literature (Veltman and Browne, 2001) identified specific characteristics of schoolchildren that show qualitative and quantitative differences between maltreated and non-maltreated children. The following assessments were chosen on the basis of this literature review, their reliability and validity and because they had been extensively

used for unobtrusive assessment of school-age children. These standardized procedures were administered to each child at each time-point. For descriptions of these psychometric measures, please refer to the references cited:

1. The British Ability Scales (BAS) (Elliott, 1983)
2. The British Picture Vocabulary Scale (BPVS) (Dunn *et al.*, 1982)
3. Battle's Culture-Free Self-Esteem Inventory (BCFSEI) (Battle, 1992)
4. Eysenck's Personality Questionnaire—Junior (EPQ) (Eysenck and Eysenck, 1975)
5. Family Relations Test (Bene and Anthony, 1985)
6. Rutter Behaviour Scale for Teachers B2 (Rutter, 1967)
7. Rutter Behaviour Scale for Parents A2 (Rutter, 1967)
8. Eyberg Child Behaviour Inventory (ECBI) (Robinson *et al.*, 1980)
9. Vineland Adaptive Behaviour Scales—Classroom Edition (VABS) (Sparrow *et al.*, 1984)

Timing of assessments

This procedure was repeated four times, at 6-month intervals, over a period of 18 months. The Rutter B2, Rutter A2, ECBI and VABS were only carried out at the beginning and end of the study. The scores from the psychometric tests constituted the key variables for comparison between physically abused and non-maltreated children.

'Repeated four times, at 6-month intervals, over a period of 18 months'

'Scores from the psychometric tests constituted the key variables for comparison between physically abused and non-maltreated children'

Treatment of results

One-way analyses of variance (ANOVA) were used to compare differences between the abused and non-abused groups at each of the four time-points (three by four, mixed measures, factorial design ANOVA was used). To determine whether the differences were significant (and unlikely to have occurred by chance), the variance was considered on two factors. The first factor was a 'between-subjects' factor with three levels of group status (abused group, comparison non-abused group 1 and comparison non-abused group 2). The second factor was a 'within-subjects' longitudinal comparison (a 'repeated measures' factor over four time-points).

Pilot Study 2: Concurrent Prediction Study

Participants

This study used a class of 30 children (18 male and 12 female) aged 10 years old. After the assessments and analyses had been completed, it was determined through discussion with social services which children, if any, out of this class of 30 were on the CPR during the study period for suspected or

actual abuse. Therefore, the child abuse status of each child was unknown to the psychologist and class teacher at the time of assessment and initial analysis of the results.

'The child abuse status of each child was unknown to the psychologist and class teacher'

Procedures

Standardized psychometric assessments were carried out on each child once. These assessments were chosen on the basis of previous research literature (see Veltman and Browne, 2001), their reliability and validity and because they had been extensively used for unobtrusive assessment of school-age children. For descriptions of these psychometric measures, please refer to the references cited:

1. The British Ability Scales (BAS) (Elliott, 1983)
2. The British Picture Vocabulary Scale (BPVS) (Dunn *et al.*, 1982)
3. Battle's Culture-Free Self-Esteem Inventory (BCFSEI) (Battle, 1992)
4. Eysenck's Personality Questionnaire—Junior (EPQ) (Eysenck and Eysenck, 1975)
5. Rutter Behaviour Scale for Teachers B2 (Rutter, 1967)
6. Battle Behaviour Questionnaire for Teachers (Battle, 1982)

Non-standardized observations

Over a period of 30 days, direct observational data were collected on each child once. Each day a child was observed for a continuous 20-minute period using a laptop computer and behaviour data-capture programme called 'Ethogram' (Browne and Madeley, 1985); this limited the chances of observer fatigue. This package recorded behaviours in real time by assigning each behaviour in the catalogue to an alphabetic key on the keyboard. Other children and teachers interacting with the child being observed were recorded using the numeric keys. Therefore, a complete record of observed behaviour and interaction was collected for analysis.

'A complete record of observed behaviour and interaction was collected for analysis'

All potential behaviours in the classroom were observed using a catalogue of behaviours operationally defined and constructed by the authors from previous classroom observations. From the behaviours recorded, those considered negative or antisocial were counted. These behaviours were identified from the relevant literature (see Veltman and Browne, 2001).

The negative antisocial events used for analyses were frequency counts of the following 12 behaviours: inappropriate avoidance, rebuking, frowning, shouting, hitting, throwing, sulking, crying, not responding, inappropriate responding, aggressive responses, and fighting. In addition, the frequency of negative responses was noted and divided into 'high' and 'low' totals.

'The direction of the "expected" assessment outcomes was derived from the literature'

Treatment of results

The mean score for each psychometric assessment variable was calculated together with the appropriate standard deviation for the whole class. Those children whose scores fell consistently outside the mean score plus or minus one standard deviation were noted. The direction of the 'expected' assessment outcomes was derived from the literature on maltreated children (see Veltman and Browne, 2001). The children's identification numbers were recorded where their scores put them outside the mean ±1 standard deviation in the 'expected' direction. Any child with seven or more measures scoring ±1 standard deviation (50% of the variables used in this part of the research) could be seen as requiring intervention for developmental delay.

With reference to the direct observation of behaviour, only negative behaviours ($N = 12$) were counted. Abused children were expected to show a greater number of negative behaviours in comparison to their classmates, as predicted by the literature. Thus, they were potentially identified on the basis of their scores in comparison to the class mean being +1 standard deviation. These children's identification numbers were noted. Any child with six or more measures scoring +1 standard deviation (50% of the variables used in this part of the research) could be seen as requiring intervention for behavioural problems in the classroom. However, an accumulation of scores may also give a 'high total negative behaviour' score which reaches +1 standard deviation above the mean, so these children were also noted. Those exceptionally withdrawn children showing much lower (−1 standard deviation) rates of negative behaviour in comparison to the mean were also noted.

Post-hoc Fisher exact test analysis was carried out to determine whether this method of identifying maltreated children was statistically significant, as well as one-way ANOVAs to compare the mean scores between the abused children and the rest of the children in the class. Tukey's HSD and Bonferonni corrections for multiple tests were also used and calculated.

Results

Pilot Study 1. Cross-Comparison Study

It was found that both the physically abused and the comparison groups had average intelligence as measured by the British Ability Scales and there was no significant difference between the two groups. The physically abused children's mean IQ scores ranged between 105.7 and 108.2 and the

Table 1. Pilot study 1: one-way ANOVA results for the Rutter Behaviour Scale for Teachers B2 for rating physically abused children ($N = 6$) and control children ($N = 12$) taken at the beginning (T1) and end (T2)

Measure	Mean & SD physically abused T1	Mean & SD control T1	*F*-value T1	*p*-value T1	Mean & SD physically abused T2	Mean & SD control T2	*F*-value T2	*p*-value T2
Rutter Behaviour Scale for Teachers B2—overall score	14.20 SD = 7.56	4.40 SD = 7.51	8.870	0.011	10.17 SD = 11.32	2.33 SD = 3.35	3.929	0.069 NS
Rutter Behaviour Scale for Teachers B2—antisocial score	3.80 SD = 3.35	0.50 SD = 1.58	7.012	0.020	2.83 SD = 3.43	0.67 SD = 2.00	2.419	0.144 NS
Rutter Behaviour Scale for Teachers B2—neuroticism score	2.20 SD = 2.49	0.30 SD = 0.95	4.755	0.048	1.50 SD = 2.35	0	3.829	0.072 NS

mean IQ scores for the comparison sample between 102.8 and 108.8. In fact, no significant differences were found on any of the psychometric measures between the two groups over time.

'No significant differences were found on any of the psychometric measures'

With reference to the teachers' assessments of the children's behaviour in the classroom, the one-way ANOVA results for between-groups differences were found to be significant at the first time-point of the Rutter B2 teacher ratings. This effect was, however, no longer significant by the end of the study (see Table 1), possibly due to the ameliorating effects of the classroom environment.

A significant within-group difference over time was found for the British Picture Vocabulary Scale (BPVS) ($F = 17.461$, $p = 0.001$). However, there was no difference between the physically abused and comparison groups. The BPVS mean percentiles were below average for both the physically abused and comparison samples at the beginning of our study. This indicated that both groups were underachieving at the first time-point. Although the physically abused sample increased their score more rapidly than the comparison sample, this was not a significant difference.

In relation to sibling dependency, no differences were found between the two groups over time, but a significant difference ($p < 0.05$) was observed between the physically abused and comparison children at time-point 1 for sibling dependency. This is of particular interest as the physically abused children exhibited a greater dependency on their siblings than the comparison children, although this significant result at time-point 1 ($F = 4.607$, $p = 0.05$) is not evident at the other three time-points. This again may be due to the ameliorating effects of the classroom environment.

'Physically abused children exhibited a greater dependency on their siblings'

Pilot Study 2. Concurrent Prediction Study

Psychometric data

The overall mean score for 28 children in the class (attrition rate of two) is given for each variable together with its appropriate standard deviation in Table 2. The 'expected' result for maltreated children referred to in Table 2 is derived from adding or subtracting one standard deviation from the overall mean score, depending on the predicted direction (see Veltman and Browne, 2001). The number of children that showed this expected result was identified and those who were later found to be on the CPR for suspected or actual abuse are indicated in bold in Table 2.

Those children whose scores fell outside the overall mean score plus or minus one standard deviation were noted across all 14 psychometric variables. Any child with 7/14 (50% of the variables used in this part of the research) 'expected' scores would be seen as a suspect for having suffered possible child abuse due to the persistent delay across a number of measures (see Figure 1).

Three children were observed to have seven or more variables with 'expected' scores (children numbers 10, 11 and 14). All three of these children were later found to have been placed on the CPR for suspected or actual abuse (see Table 4).

Table 2. Pilot study 2: test battery mean scores and standard deviations on 14 measures for 28 children plus 'expected' extreme scores for maltreated children, and child identification numbers of those children who scored an extreme score

Assessment	Mean	Standard deviation	Expected result for maltreated children	Detected child identification no.	No. identified
British Ability Scales Short-Form IQ	98.77	11.84	<86.93	1, **7**, **10**, **11**, 28	5
British Picture Vocabulary Scales*	26.30	23.33	<2.97	**7**, **10**, 13, 22	4
Total self-esteem score*	55.57	28.88	<26.69	3, **10**, **11**, 13, **14**, 16, **20**	7
General self-esteem subscore*	54.60	26.40	<28.2	**10**, **11**, 12, 13, 16, 29	6
Social self-esteem subscore*	68.47	27.12	<41.35	3, **10**, **11**, 14, 16	5
Academic self-esteem subscore*	62.10	28.44	<33.66	3, **11**, 16, 29	4
Parent self-esteem subscore*	71.10	21.89	<49.21	3, **10**, 13, 14, **20**, 28	6
Eysenck Personality Questionnaire (Junior)—neuroticism	11.79	3.86	>15.65	**11**, 16, 25	3
Eysenck Personality Questionnaire (Junior)—extroversion	17.76	3.79	<13.97 or >21.55	5, **10**, 12, **20**, 29 and 8, 9, 15, 30	5 and 4
Eysenck Personality Questionnaire (Junior)—psychoticism	3.52	2.84	>6.36	1, 4, **11**, **14**	4
Rutter B2 Scale for Teachers	14.21	12.13	>26.35	8, **10**, **11**, **14**, 24, 28	6
Rutter B2 Scale for Teachers—antisocial subscore	6.59	3.92	>10.51	8, **11**, **14**	3
Rutter B2 Scale for teachers—neuroticism subscore	3.06	2.59	>5.65	**10**, 12, 24, 28	4
Battle Behaviour Questionnaire for Teachers	30.54	2.20	>32.74	2, **14**, 17, 19, 21, 27	6

* Percentile scores.
Note: Children later found to be maltreated in **bold**.

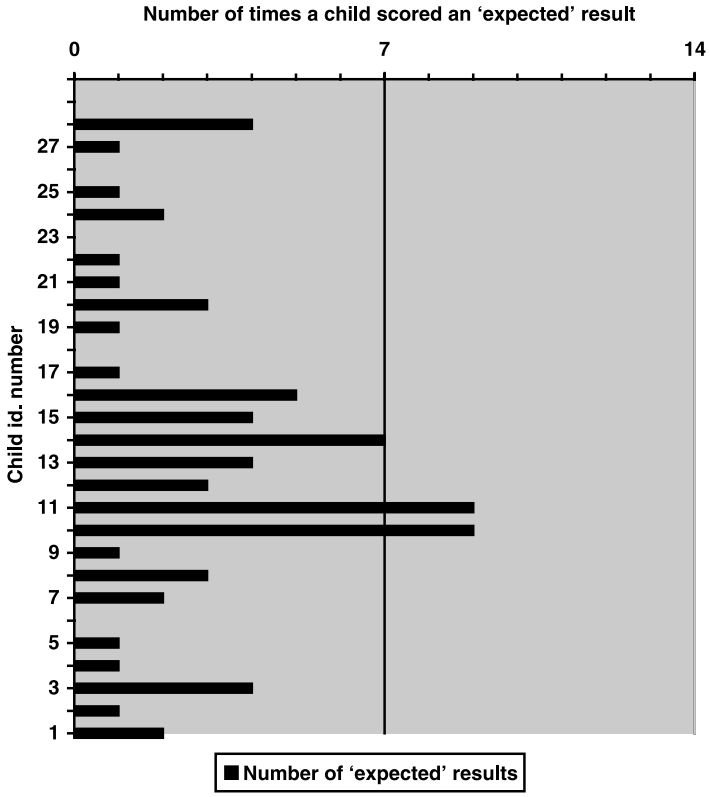

Figure 1. Pilot study 2: number of 'expected' extreme results per child ($N = 28$).

Observational data

The mean score for each negative behaviour was found with its appropriate standard deviation (see Table 3). Those children identified as showing greater frequency of any observed negative behaviour (greater than one standard deviation from the mean) were identified. Children who could be considered as withdrawn and non-expressive by showing a low number of negative behaviours were also noted.

Any child with a high frequency of more than six negative behaviours (50%) could be considered as having severe emotional behavioural problems which may be associated with child abuse (see Figure 2).

Only one child was observed to meet the above criteria using the observational data. Child 11 was identified as extreme on six negative behaviours; this child was later determined to have been placed on the CPR for suspected physical abuse (see Table 4). However, the next highest frequency (four negative behaviours) was observed in three non-maltreated children. Of interest is that the only sexually abused child in the class showed one standard deviation below the class mean for negative behaviours. This female child's lack of expression was

'Children identified as showing greater frequency of any observed negative behaviour •••• were identified'

Table 3. Pilot study 2: observation of negative behaviours in the classroom, their mean scores and standard deviations for 30 children plus 'expected' extreme scores, and child identification numbers of those children who had extreme scores

Observed negative behaviours	Mean	Standard deviation	Expected no. of observations for abused children	Detected child identification no.	No. identified
Inappropriate avoidance	1.15	2.11	>3	**1**, **10**, **11**, **14**	4
Rebukes	1.30	1.96	>2	1, 8, **11**, 12	4
Frowns	1.52	3.34	>5	8, **11**	2
Shouts	1.85	2.25	>4	1, 8, **11**, **14**, 18, 29	6
Hits	0.67	1.14	>1	**11**, 12, 27, 29, 30	5
Throws	0.85	1.43	>2	**11**, 12, 16, 22, 30	5
Sulks	0.037	0.19	>0	29	1
Cries	0	0	>0	None	0
No response	6.11	5.20	>11	4, 5, 13, 23, 30	5
Inappropriate response	0.33	0.73	>1	8, **20**	2
Aggressive response	15.52	12.66	>28	1, 22, 23, 27	4
Fights	0.81	2.09	>3	**17**, 29	2
High total negative behaviours	30.07	18.76	>48	**1**, 8, 12, 30	4
Low total negative behaviours	30.07	18.76	<12	13, 17, **20**, 25	4

Note: Children later found to be maltreated in **bold**.

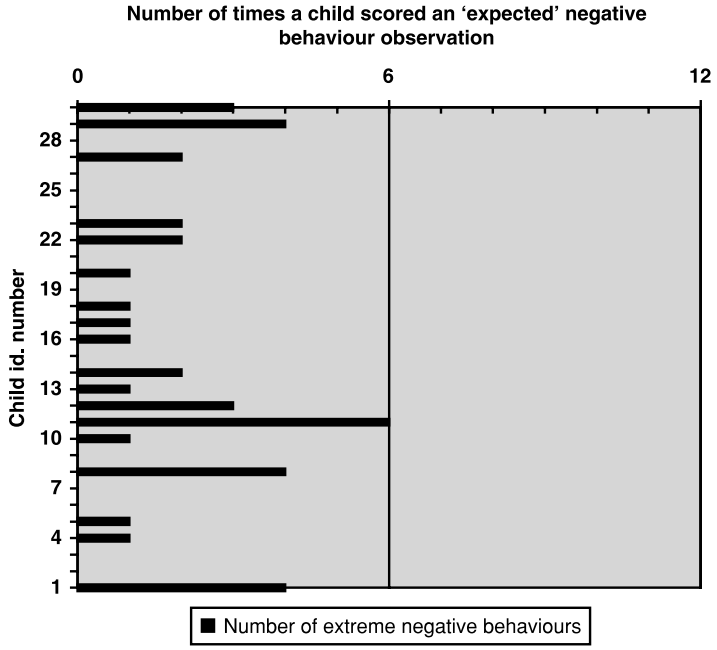

Figure 2. Pilot study 2: number of extreme negative behaviour categories per child ($N = 30$).

reflected by an extremely low total score together with three other non-maltreated children.

Post-hoc analyses

After the psychometric assessments and behavioural observations had been carried out and the data analysed, social services were subsequently approached. At the time of the study,

Table 4. Pilot study 2: the identification numbers, gender and abuse category of children ($N = 5$) on the child protection register (CPR) for the classroom study ($N = 30$)

Pupil identification no. and sex	Maltreatment category on CPR
7—Male	Physical abuse
10—Male	Emotional abuse*
11—Male	Suspected physical abuse
14—Male	Suspected physical abuse
20—Female	Sexual abuse

* Emotional abuse as sibling actually physically maltreated.

Table 5. Pilot study 2: standardized assessments of abused ($N = 5$) and non-abused ($N = 23$) children, fisher exact test results

Assessment	No. of abused children identified Correct hit	No. of abused children not identified False miss	No. of control children identified False hit	No. of control children not identified Correct miss	Fisher exact *p*
British Ability Scales Short-Form IQ	3	2	2	21	0.027
British Picture Vocabulary Scales	2	3	2	21	0.135
Total self-esteem score	4	1	3	20	0.008
General self-esteem subscore	2	3	4	19	0.553
Social self-esteem subscore	3	2	2	21	0.027
Academic self-esteem subscore	1	4	3	20	0.568
Parent self-esteem subscore	3	2	3	20	0.05
Eysenck Personality Questionnaire (Junior)—neuroticism	0	5	3	20	0.61
Eysenck Personality Questionnaire (Junior)—low extroversion	2	3	3	20	0.207
Eysenck Personality Questionnaire (Junior)—high extroversion	0	5	4	19	0.568
Eysenck Personality Questionnaire (Junior)—psychoticism	2	3	2	21	0.135
Rutter B2 Scale for Teachers	3	2	3	20	0.050
Rutter B2 Scale for Teachers—antisocial subscore	2	3	1	22	0.073
Rutter B2 Scale for Teachers—neuroticism subscore	1	4	3	20	0.568
Battle Behavior Questionnaire for Teachers	1	4	5	18	1.0
Overall assessment identification	3	2	0	23	0.003

they identified five of the 30 children in this class to be on the CPR for actual or suspected abuse (see Table 4).

'Five of the 30 children in this class to be on the CPR for actual or suspected abuse'

The overall assessment (see Table 5) results show that three of five abused children were identified using the 'standardized test' method. However, just as important is the fact that no non-abused children were falsely detected using a battery of tests. As can be seen from the results in Table 5, the Fisher exact test analysis was found to be highly significant ($p = 0.003$) for the overall assessment.

Furthermore, Table 5 shows significant identification of abused and non-abused children using IQ (BAS), self-esteem (CFSEI; for feeling about parents, social competence and total self-esteem score) and teachers' ratings of classroom behaviour (Rutter B2 Scale).

The 'observational' part of pilot study 2 drew attention to one of the five abused children. It would be impossible to identify the other four abused children using observations of negative behaviours without a large number of false positives in this class of children. The only other interesting finding from the observations was that three of four children with one standard deviation above the mean for inappropriate avoidant behaviour were abused children ($p = 0.01$, Fisher's exact test).

Discussion

Pilot Study 1

The main limitation of this pilot study is the use of a small sample size. However, this allowed a longitudinal approach to the investigation, with assessments of six physically abused children and 12 non-abused children carried out at four time-points over a period of 18 months.

'Only a few significant differences were found between the physically abused and comparison children'

Only a few significant differences were found between the physically abused and comparison children. These were mainly the teachers' ratings of the children's behaviour. The physically abused children were rated higher on the overall problem behaviour score, as well as the antisocial and neuroticism subscores. The only other significant result was that the abused children themselves were found to be more dependent on their siblings than on their parents at time-point 1. This difference was no longer evident at the other three time-points, which may relate to physically abused children's interaction with and support from their peers in the class as the year progressed. No differences were found in cognitive development between the abused and comparison children.

The lack of significant differences in cognitive development may in part be due to the matching criteria of the abused and non-abused children, which is consistent with the findings from previous studies (Lynch and Roberts, 1982; Roberts *et al.*, 1978). Similarly, no significant differences were found for the BPVS relating to language development, possibly because both abused and non-abused children were from deprived socioeconomic backgrounds. This supports previous findings (Gregory and Beveridge, 1984; McFadyen and Kitson, 1996). However, significant differences in problem behaviours were evident as rated by the class teachers. This might be explained by the fact that the teachers were not blind to the status of the maltreated children in pilot study 1.

Pilot Study 2

The best indicators of child abuse to arise out of this investigation of 30 children (28 of whom participated in the psychometric assessments) were the measures of IQ, self-esteem and again the teachers' ratings of problem behaviour. The battery of standardised assessments of identifying maltreated children correctly identified three of five abused children and 23 of 23 non-abused children, with no false alarms. Only the high rate of 'avoidance' behaviour by the abused children was found to be significantly different from non-abused children in the classroom observations of negative behavioural events. Only one of five abused children could be identified from observation of negative behaviours in the classroom.

'Only one of five abused children could be identified from observation of negative behaviours'

The high number of five abused children in a class of 30, who were concurrently found to have been registered on the CPR for suspected or actual abuse, might be due to the fact that the school was situated in a deprived area. It had been previously estimated that up to 4% of children with socioeconomic problems suffer some form of child abuse and neglect (Browne and Herbert, 1997, p. 120). As the school selected was in a deprived area, it was therefore estimated that the chance of finding one maltreated child in a class of 30 was 36% and that of finding five maltreated children in a class of 30 was one in 190 000. Hence, deprivation alone does not account for the study finding 16.7% of children in the class with suspected or actual child abuse. This is approximately 60 times the national rate of registration for children in this age group at the time of the study (Department of Health, 1998b).

The three boys who were detected using the 'mean scores ±1 standard deviation' method on standardized psychometric assessments had all been on the CPR under the 'physical abuse' and 'emotional abuse' category. However, one physically abused boy and one sexually abused girl were not successfully detected using this method.

General Discussion

The paper has demonstrated that physically abused children exhibited significantly more problem/antisocial and neurotic behaviours at the beginning of the school year, possibly due to the fact that they had spent a long summer vacation in an abusive home environment. However, this difference from comparisons was no longer present 18 months later. Maturation effects may account for catch-up in the physically abused

children due to the relatively enriched school environment compared to that of their family homes eliminating any differences later in pilot study 1. The physically abused children's dependence on the siblings also declined with time, which may be due to the classroom environment offering interaction and support from peers at school. Of course, relatives and non-abusive family members may also act as a buffer against adverse experiences and help the child to be more resilient. In addition, it is possible that once a maltreated child has been identified, professional interventions may have helped rehabilitate the abusive home environment.

Socioeconomic deprivation may have masked the difference between those children who were concurrently found to have been abused and those who were not and account for the fact that the BPVS mean percentiles were below average for both the physically abused and comparison samples in pilot study 1. In addition, non-abused children may have witnessed violence in the community or family, which has been shown to have similar effects to being a victim of violence (Brassard *et al.*, 1987; Browne and Fereti, 1996; Garbarino *et al.*, 1986; Jaffe *et al.*, 1990). Indeed, deprived areas have higher rates of referral to police domestic violence units (Browne and Hamilton, 1999).

'Non-abused children may have witnessed violence in the community or family'

Individual resilience, differing family situations and other buffers and protective factors may have further lessened the effect of experiencing abuse compared to the comparison children (Rutter, 1985, 1997; Starr *et al.*, 1991). Furthermore, Hamilton and Browne (1998, 1999) provide evidence that the notion of 'once a victim, always a victim' is only true for a minority of cases.

Conclusions

Research and policy has come a long way in guiding teachers and education professionals in the protection of children who disclose abuse and neglect. However, studies are required to develop non-intrusive mechanisms that can help teachers identify maltreated children in the classroom who have not disclosed.

This paper has suggested that a battery of standardized assessments and direct observation of negative behaviour may be able to identify abused children from those who were not. The results of pilot study 1 showed significant differences on the teacher rating scales and on a measure of sibling dependency. Pilot study 2 used standardized assessments and identified three of five abused children. Direct observations

identified one of five abused children. These two preliminary studies suggest standardized assessments are more useful than behavioural observations in identifying abused children in the classroom setting. Despite the small sample size, which limits the conclusions of this research, further investigations may help formulate a battery of assessments to assist teachers in identifying children who are at risk of potential harm. However, further confirmation of these findings is required using larger-scale studies.

'These two preliminary studies suggest standardized assessments are more useful than behavioural observations'

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