

"Hey Dad, watch me": The effects of training a child to teach  
pain management skills to a parent with recurrent headaches

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### Abstract

This study examines the efficacy of a cognitive-behavioural program for recurrent headaches which was first implemented with an 8 year old boy suffering from headaches. The child was subsequently trained to implement the same intervention with his father who also suffered from headaches. The treatment involved pain management skills, such as relaxation training, imagery, positive talk, and distraction techniques. In addition, a parent contingency management component involving the mother was employed. The treatment intervention was sequentially introduced to the child and father in a non concurrent multiple baseline across subjects design. Headache diaries and self-report measures were completed by both clients. From pre to post treatment there was respectively a 92.5% and 86.7% improvement in headache frequency, a 67% and 85% improvement in mean headache intensity and a 89.44% and 28% improvement in headache duration. Three month follow up data showed that both subjects had 100% improvement rates on all headache measures. The results highlight that some children can successfully teach their parents pain management skills. Possible clinical implications of the results for the treatment of families, where multiple family members suffer from pain are discussed.

Epidemiological studies have shown that by 15 years of age as many as 75% of children have experienced significant headaches (Apley, 1975; Barr, 1981; Billie, 1962; McGrath, 1990), and together with headaches in adults (Leviton, 1978) and adolescents (Andrasik, Holroyd & Abell, 1979) this places a considerable burden on the primary health care system.

Many children experience headaches before beginning school, with headache prevalence increasing with age. Under age 10, migraine headaches are more common, while tension headache becomes the more predominant in adolescence. Although headaches spontaneously remit in some children, little is known about the variables responsible for this (McGrath, 1990) and treatment techniques have differing rates of success for different headache diagnostic groups (Blanchard et al., 1982). Often recurrent pain problems is a familial problem and children with recurrent pain (particularly migraine headaches) often have a parent who suffers from migraine headache or other chronic illness (Apley, 1975; Mortimer, Kay, Jaron & Good, 1992). Consequently, a clinician dealing with a child referred for the treatment of headache may be dealing with a family system dominated by pain experiences.

The importance of social learning influences in understanding the development and maintenance of pain perception and pain expression is becoming increasingly recognised in the literature (Fordyce, 1975; Waranch & Keenan, 1985; Sanders, Rebgetz, Morrison, Bor, Gordon, Dadds, & Shepherd, 1989; Beames, Sanders, & Bor, 1992). Parents of children with chronic pain may provide discriminative cues and selectively reinforce pain behaviours by giving inappropriate attention and allowing the avoidance of non preferred activities (Philips, 1987; Sanders, Shepherd, Cleghorn & Woolford, in press). The situation becomes more complex however, when parents themselves are incapacitated by recurrent pain. Adults with chronic pain may suffer from depression (Blanchard & Andrasik, 1985;

Garvey, Schaffer & Tuason, 1983). The child may be exposed to unpredictable consequences for pain behaviour, and poor coping skills may be modelled by the parent, particularly if the parent has frequent intense episodes of pain.

Several authors have investigated the role of behavioural family interventions, particularly parent training in the management of pain (e.g. Sanders et al, 1989). Beames et al (1992) found that a nine session treatment program combining training of the child in self coping skills and concurrent contingency management training for parents was effective in reducing headaches. Teaching parents to reinforce the child's well behaviour, and to prompt and reinforce the child's use of active coping techniques has also been effectively used in the treatment of recurrent abdominal pain (Sanders et al, in press). A similar skills oriented approach involving both parents and children has also been advocated for the treatment of limb pains in children (McGrath, 1990). Hence, increasing evidence supports the therapeutic value of training parents of children with recurrent pain in contingency management skills.

Other evidence shows that children can also be trained to help other children with a range of problem behaviours. They can be effective peer tutors of children having academic learning difficulties (Greenwood, Dinwiddie, Terry, Wade, Stanley, Thibadeu & Delquadri, 1984) or who are disruptive in the classroom (Sanders & Glynn, 1977). Children often help their parents discover how to use video recorders, computer games and other pieces of equipment and tools, but little attention has been given to the possibility of involving a child in a helping role in the treatment of adult pain. Children who have been successfully treated for headache may be able to share their newly acquired active coping skills with a parent who also suffers from chronic headaches.

There are several possible advantages of involving children in the treatment of their parents headaches. First, where children teach parents skills and then practice the

targeted skills together, it provides the child with opportunities for reinforcement and consolidation of their own skills, which may enhance the maintenance of the child's gains. Research in peer tutoring of academic tasks shows there are often educational benefits for both tutor and tutee (Dineen, Clark & Risley, 1977). Second, selected children who have acquired successfully pain management skills may be quite effective as tutors for their parents, providing a useful adjunct to therapy. Third, involving children and parents in the same family in the mastery of the coping skills may provide reciprocal support, maintain motivation and may be a useful strategy for dealing with families where multiple family members suffer from the same condition.

The present case study describes and evaluates an intervention that initially involved training the child and his mother to implement pain management strategies for dealing with the child's headache and then involved training the child to act as a therapist for the treatment of the fathers' headaches.

## Method

### Participants

The client was an 8 year old boy with a history of recurrent tension headaches who had been referred by his general practitioner to the Behaviour Research and Therapy Centre, an outpatient clinical research and training facility at the University of Queensland. The child first experienced headaches at 2 years of age and although their frequency increased over the years, their intensity did not. On presentation the estimated frequency of headaches was 3 per week with an estimated duration of 1.5 hours per headache although this was reduced to 20 minutes if 10 mils of panadol was administered. The second client was the referred child's 40 year old father, an accountant, who also suffered from frequent tension headaches, which he treated with digesics. His headaches were

reportedly not as frequent as those of his child but were severe enough to interrupt and frequently stop his daily activities.

### Measures

Headache Diary. Both subjects kept a daily diary of headache frequency, intensity and duration. Headache intensity was recorded on a six point scale the same as that used by Beames et al (1992). This scale was used every hour that the headache persisted and represented how bad it was at its worse during any given hour.

Children's Depression Inventory (CDI). The CDI (Kovaks, 1981) is a 27 item self report instrument that was used for assessing the child's level of depression. The CDI has good internal consistency, is a valid measure of emotional distress and a reasonable measure of depression, although its test-retest reliability may be variable across populations and intervals (Kazdin, 1981).

Revised Manifest Anxiety Scale (MAS-R) (Reynolds & Richmond, 1978). The MAS-R is a 37 item self report inventory of anxiety in children and has been widely used in anxiety research with children (Reynolds, 1977). Reliability and validity studies show internal consistency and test-retest reliability coefficients greater than or equal to 0.80 (Reynolds & Paget, 1981).

State-Trait Anxiety Inventory (STAI). The STAI (Spielberger, 1983) was completed by the father at pre and post treatment, to gain a general (trait) and situational (state) measure of anxiety. This measure displays good levels of reliability and internal consistency (Spielberger, 1983).

Beck Depression Inventory (BDI). The BDI was completed by the father at pre and post treatment to assess mood and any changes that may occur over time. This measure demonstrates high internal consistency, and concurrent validity with respect to clinical ratings and the Hamilton Psychiatric Rating Scale for Depression with non-psychiatric

populations (Beck, Steer & Garbin, 1988).

Consumer Satisfaction Measure. This measure comprises of 14 quantitative ratings (1-5) of satisfaction and 4 questions requiring a qualitative measure of client satisfaction. This questionnaire is routinely administered to all clients, of the Behaviour Research and Therapy Centre at the University of Queensland, on termination of therapy.

### Design

Treatment was evaluated using a modified non-concurrent multiple baseline across subjects design, in which the same treatment was first introduced to the child using the therapist as trainer and then introduced to the father using the child as trainer. This design varies from the typical multiple baseline across subjects design, in that the same intervention was delivered by different trainers, to different subjects.

### Procedure

Baseline phase. Following the intake interview, the child recorded his headaches, using the seven day headache diary. In week six of monitoring, baseline recording for the father began.

Child-focused pain management. Therapy involved six sessions based on Beames et al (1992). Table 1, summarises the major treatment components. For every session after week 3 relevant handouts were given to the child to read as homework in addition to keeping the diary and practising relaxation twice a day by listening to an audio tape.

Table 1 about here .

In week 4 the child was introduced to the idea of pleasant imagery to enhance relaxation, when listening to the relaxation tape and to provide a competing response to pain when a headache occurred. The child was able to imagine being in a pleasant place where headaches were not allowed to intrude. This scene involved lying on an airbed in a swimming pool on a warm summer's day, with a big house behind him full of video

games and pinball machines, with friends living nearby so that he could invite them over to play when he wanted. He was instructed to try this option he had when he could feel a headache beginning.

In week 5 the child was given an "Armoury Card" upon which he wrote all the strategies he had learnt to deal with headaches. When a headache began he reminded himself of his options, and took his pick of his new "weapons". Being a keen rugby player Michenbaum's (1976) stress coping model was viewed as a "Game Plan" to beat the enemy team. The child's least favourite team (New South Wales) was likened to the headache and so offered more incentive not to be "victimised" by it. This game plan was kept on a card and used in conjunction with the armoury card (Beames et al., 1992).

Father-focussed pain management. The father received the same cognitive-behavioural skills training, being tutored by his son, with the aid of supplementary handouts. In week 6 the child was invited to be dad's teacher/therapist and to help him stop his headaches. He was given a headache diary for his father to complete and an introductory handout for his father on the Type A coronary-prone behaviour pattern (Turk, Michenbaum & Genest, 1983). The mother described the father as a 'perfect match' to the Type A pattern and had even thought he was having a heart attack at one time due to extreme muscular tension on the left side of his torso.

In week 7 the child was given a treatment manual as an aid for teaching the father what he had learned over the past weeks. This manual was written at the reading level of an 8 year old, and was divided into weeks. For each week the child was given handouts appropriate to the next session's topics that were appropriate for the fathers reading level. These were given to the father each week at the beginning of their session. More information regarding this manual may be obtained from the authors.

In week 8 no therapy session was scheduled, although data collection continued.

Week 9 was a booster session for trouble shooting and revising the father's treatment manual. Therapy was terminated after week 9, although the child's mother continued to bring into the clinic both sets of diary records until the father had completed the course.

### Follow up

At 12 weeks post treatment all pain measures and questionnaires were completed by both subjects for a further 3 weeks.

## Results

Since only 2 sets of data were collected during the baseline phase for both subjects, the following results must be treated as general indications.

### Headache Frequency

Figure 1 presents the headache frequency of the two subjects. The child and father showed an increasing baseline rate of headaches. Once treatment began this frequency decreased markedly for both subjects such that the child was headache free for 6 weeks and the father has had 4 weekly periods without a headache. Headaches occurred for the child and the father in weeks 6 and 10 respectively. Overall there was an improvement in headache frequency of 92.5% for the child and 86.7% for the father by post treatment. At 12 week follow up this improvement had increased to 100% for both the child and father.

Insert Figure 1 Here.

### Headache Intensity

Figure 2 presents the mean headache severity when at its worst. For the child the severity slightly increased over baseline (mean = 3) whilst for the father it was constant at a severity of 2. During treatment severity ratings quickly decreased to zero for child and father. By post treatment the mean headache intensity for the child had improved by 85% while for the father the improvement was 67%. By 12 week follow up this improvement rate

had risen to 100%.

Insert Figure 2 Here.

### Headache Duration

Figure 3 presents the mean duration of each headache (in hours). At baseline, headache duration descended slightly for the child but ascended slightly for the father. Following the commencement of treatment there was a substantial reduction in headache duration for both the child and father. A notable exception occurred in week 10 for the father. Although the father only had one headache after beginning treatment it lasted for 9 hours, which is 260% longer than his baseline mean of 2.5 hours. Overall the improvement in headache duration was 89.44% and 28% for the child and father respectively. No headaches were reported during follow up, both subjects improved 100% as compared with baseline data.

Insert Figure 3 Here

### Other Measures

There were no significant differences between pre, post and follow up measures on self report data measures completed by the child. Unfortunately the father did not complete the self report measures at post-treatment, but there were no significant differences between pre-treatment scores and follow up scores on the self report data. Medication used by the child for headaches dropped to nil and the father used it only once after the onset of treatment. Consumer satisfaction was also assessed and both of the child's parents were highly satisfied with the intervention (rated 70 out of 70) and viewed their son as completely "cured". At a verbal level, both of the child's parents also expressed complete satisfaction with the treatment the father received via the child.

## Discussion

This study provides further support for the effectiveness of cognitive-behavioural family interventions in the treatment of pain in children. These results replicate those of Beames et al (1992) and are consistent with those of Sanders et al (in press) with children suffering from RAP, which highlights the effectiveness of combining self-management and parent training interventions. Consistent with prior research, the intervention did not result in any negative side effects or symptom substitution (Sanders et al, 1989). However, of special interest here is the improvement in the father's headaches as a result of being taught pain management strategies by his son.

This is the first study to our knowledge that has investigated the use of a child as a tutor for an adult pain problem. We suspect that teaching his father helped the child's understanding of the therapy sessions, and the rehearsal of the relaxation skills with his father, reinforced this method of coping.

It is evident that there may be a number of explanations for the father's improvement. The child's modelling of well behaviour and active coping may have motivated the father to try the same strategies. It could have been seen in the light of "if he can get better, so can I" or "I might as well do this, because even if it doesn't help me it might help my son". Both father and son encouraged each other to complete their homework (e.g. relaxation and positive imagery practice). Another factor relates to the time and attention they pay to each other whilst practicing every day and having their weekly 'session'. This positive attention occurs primarily for the child, but also for the father, at a time when well behaviour is being modelled and pain coping skills are being practised by both clients.

The possible advantages of this method are apparent when a child is given a mandate to instruct and consolidate what they have learned with the therapist.

However, there are several possible limitations as well. Both the child and the father in this case were motivated to take part and saw advantages of learning pain coping strategies for dealing with their headaches. It is doubtful if this method would have been as successful with a disruptive or oppositional child or where the father had significant psychopathology (e.g. depression, alcohol problems). An alternative approach to treating both parent and child is to involve both in initial therapy sessions, to plan times when they should practice together, and to provide reciprocal support.

This intervention has the potential to be applied to other familial disorders such as anxiety problems and depression in selected cases. While future research needs to replicate the present findings, the outcome was sufficiently encouraging to explore this technique with other disorders.

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Table 1

- Week 1. Conducted Intake Interview
- Week 2. A). Provided Assessment Feedback to Mother and Child  
B). Information Giving  
I). Handouts on Headaches (Based on Turk et al., 1983).  
II). Handouts on Gate Control Theory of Pain (Melzack & Wall, 1965)
- Week 3. Instructed in Breathing and Relaxation (Cautela & Groden, 1978)
- Week 4. \*Introduced Child to Visual Imagery (As outlined by Turk et al., 1983).
- Week 5. A). Distraction / Directed Attention Taught + \*Armoury Card  
B). Stress Coping Team Plan Derived + \*Game Plan Card
- Week 6. Training of Parent in Contingency Management
- Week 7. Problem Solving, Maintenance and Generalisation Issues  
Addressed & Quick Relaxation Practiced.
- Week 9. Revised Fathers Treatment.

\* Further Explanation in Text.

Figure Legend

Figure 1      Number of Headaches per week

Figure 2      Mean severity of headaches when pain at worse

Figure 3      Mean length of headaches