

**THE RENFREWSHIRE “MASSAGE IN
SCHOOLS” PROGRAMME (MISP)**

**AN EVALUATION OF ITS IMPACT IN A
PRIMARY SCHOOL**

(MAY 2005)

**Dr Richard Woolfson
Lindsay Campbell
Margaret Banks
(Renfrewshire Educational Psychology Service)**

**Dr Lisa Woolfson
(University of Strathclyde)**

EXECUTIVE SUMMARY

The “Massage in Schools” Programme (MISP) is currently conducted in 18 primary schools in Renfrewshire, with more extensive implementation of the programme planned for the near future. This current study provides an evaluation of the MISP when provided to a class of P2 children, and specifically examines two factors that are claimed to improve following participation in this programme, namely, on-task behaviour and self-esteem. The views of teachers, parents and children who participated in the MISP are also gathered to examine changes in a variety of other aspects of behaviour, namely, aggression, co-operation, sensitivity, happiness and social skills. Their perception of the MISP was also assessed.

Data analysis confirmed that P2 pupils who participated in the MISP over a six-week period made significant improvements in concentration (as measured by on-task behaviour), compared to a control group of P3 children. Although the P2 pupils showed a significant gain in self-esteem following participation in the MISP, there were similar significant gains for the P3 pupils in the control group. Support for claims that the MISP influences other aspects of child behaviour (namely, aggression, co-operation, sensitivity, happiness and social skills) was not found. This study confirmed that the MISP is viewed positively by the majority of stakeholders (children, parents and teachers), with all involved expressing a desire to continue participating in the activity.

In the light of these findings, a number of suggestions are offered for developing the MISP in Renfrewshire schools in the future.

Dr Richard C Woolfson, Lindsay Campbell, Margaret Banks
(Renfrewshire Educational Psychology Service)

Dr Lisa Woolfson
(Psychology Department, University of Strathclyde)

May 2005

PART 1: INTRODUCTION

The importance of touch for the healthy development of infants and children has long been recognised. For example, touch is acknowledged as the primary method of communication used by infants in the early stages of life and aids in the development of social bonds (Arkwright, 1998). It is the loving touch between a parent and an infant that helps a child establish secure attachment relationships, whilst assisting in many aspects of physical and personal growth and it is essential for healthy brain development (Bowlby, 1958; Ayres, 1985). Through the use of physical contact, infants establish feelings of security and emotional well-being which allow them to securely explore the world around them (Ainsworth, Blehar, Waters & Wall, 1978).

Some evidence that highlights the importance of touch for child development stems from studies conducted with primates (Harlow, 1958). However, there is evidence from real-world scenarios which suggest that touch is an important influence on a child's healthy development. For example, in Romanian orphanages where, through lack of funds and staff shortages, children remain in their cots all day and only receive physical touch when essential, hormone levels and regulation in these children have been found to be abnormal. Further, abnormalities in stress hormone levels are directly related to delays in mental, physical and motor development (Carlson, 1998).

It is claimed that deprivation of touch can have a negative impact on important aspects of physical and emotional development (Bowlby, 1953; Harlow, 1958). More recently, it has also been found that in cultures where physical contact is minimal there are significantly higher rates of violence (Prescott, 1990; Field, 1999). This suggests that lack of touch can impair the healthy psychological development of infants, with possible long-lasting effects throughout childhood, adolescence and adult life.

Recently, the therapeutic use of touch (specifically massage) has been examined in more detail with a wide sample of participants. Massage involves the use of touch, especially rubbing and kneading, to manipulate the muscles which in turn promotes relaxation and eases pain. For premature babies, the daily use of massage has been linked to significant increases in weight gain and reduced time spent in hospital (Field, Schanberg, Scafidi, Bauer, Vega-Lahr, Garcia, Nystrom, & Kuhn, 1986). The use of massage has been shown to decrease hyperactivity and fidgeting, and to increase concentration, in children with ADHD (Field, Quintino, Hernandez-Reif & Koslovsky, 1998a).

It has also proved a useful tool to reduce stereotypical behaviour and social difficulties in children diagnosed with autism (Escalona, Field, Singer-Strunck, Cullen, & Hartshorn, 2001). Other studies claim that massage can reduce aggression (Diego, Field, Hernandez-Reif, Shaw, Rothe, Castellanos, & Mesner, 2002), enhance alertness (Field, Ironson, Scafidi, Nawrocki, Goncalves, Burman, Pickens, Fox, Schanberg, & Kuhn, 1996), reduce stress and anxiety (Field, Morrow, Valedon, Larson, Kuhn, & Schanberg, 1992), improve mood (Khilnana, Field, Hernandez-Reif, & Schanberg, 2003) and decrease depression (Field, Schanberg, Kuhn, Field, Fierro, Henteleff, Mueller, Yando, Shaw, & Burman, 1998b).

Despite the evidence that massage may play a role in both healthy development and behaviour management with specialised populations, there has been limited research carried out on massage with typically-developing individuals. Two studies, however, report positive effects with preschool children. Hart, Field, Hernandez-Reif, & Lundy (1998) conclude that massage could improve cognitive performance and Uvnas-Moberg found that aggression and somatic complaints, such as headaches and stomach aches, decreased in pre-school boys following massage (personal communication, 17 Jan 2005). However, there is a paucity of research which examines the benefits of massage with children of primary-school age. One explanation for the lack of research in this area is the “no touch” policy in the US which prohibits children from touching each other. The enforcement of this rule makes it very difficult to carry out studies of this nature with school-aged children. However, this does not apply in the UK.

The positive effects produced by massage therapy are believed to be immediate, with no necessity to wait a prolonged period of time before results become apparent (Diego, 2002; Field et al, 1998b). There have also been studies which have identified the presence of long-term benefits by comparing scores on a variety of scales on the first and last day of the therapy (Field et al, 1998a; Khilnana et al, 2003).

Massage has been linked to changes in physiological factors, including a reduction in cortisol, which is the hormone associated with stress (Field et al, 1992; Field et al, 1998b), an increase in oxytocin, which regulates calmness and healing (Uvnas-Moberg, 1998), alteration of brainwave patterns which allows increased concentration (Field et al, 1996), and increased vagal tone which causes the release of substances that reduce heart rate.

There are also social factors to consider. A study with aggressive adolescents considered the possibility that a bond was formed between masseur and the massage recipient, leading to the reduction in aggression. For these adolescents, aggressive relationships may have been all they had previously known. Developing a relationship around positive touch could have an impact on their perception of appropriate behaviour and reduce hostility (Diego et al, 2002). Therefore it appears a variety of factors, physiological and social, interact to produce the positive effects noticed through massage.

The Massage in Schools Programme (MISP) was co-founded by Elmsater & Hetu and first introduced to the U.K in 1999. This programme has a vision to ensure “every child attending school experience positive and nurturing touch every day. . . everywhere in the world.” (Massage in School, 2004). Whilst fully clothed, children are taught to massage each other on the back, shoulders, head, arms and hands by either a qualified instructor or appropriately-trained teacher. It is recommended that the children give each other a massage for 10–15 minutes each day, under the instruction and supervision of a MISP instructor or appropriately-trained teacher.

Despite the lack of supportive published research involving school-aged children, proponents of the MISP claim that it produces a multitude of positive effects, including improved concentration, increased confidence, a reduction in bullying, improved motor skills and improved mood. In addition, it is claimed that pupils experiencing the MISP also show progress in their social skills and in their respect for others (Trower,

unpublished). Research has also claimed that self-esteem can increase following participation in the MISP (Trower, 2004). However, the evidence for these claims is largely anecdotal.

CURRENT STUDY

The MISP is currently conducted in 18 primary schools in Renfrewshire, with more extensive implementation of the programme planned for the near future. This current study provides an evaluation of the MISP when provided to children who attend a primary school; it specifically examines two factors that are claimed to improve following participation in this programme, namely, on-task behaviour and self-esteem. It was considered that evaluating the impact of the MISP on these traits would be of greatest interest and benefit to schools. The views of teachers, parents and children who participated in the MISP are also gathered to examine changes in a variety of other aspects of behaviour, namely, aggression, co-operation, sensitivity, happiness and social skills. Their perception of the MISP was also assessed.

Hypothesis 1: The treatment group will show improved on-task behaviour post-intervention compared to the control group.

Hypothesis 2: The treatment group will show improved self-esteem post- intervention compared to the control group.

PART 2: METHODOLOGY

Participants

Following parental consent, all 26 pupils from a P2 class and all 27 pupils from a P3 class, in Woodlands Primary School, Linwood, took part in the classroom activities involved in this study. However, only 14 parents of pupils in the P2 class, along with 14 parents of pupils in the P3 class, gave permission for their child to be involved in the data collection part of the study. Therefore there were 28 children involved in the collection of data from young people.

Procedures

Random allocation to treatment and control groups was not a practical option in this study so a quasi-experimental design was employed using pre-existing class groups. A Primary 2 teacher from the participating school had completed an appropriate training course to implement the MISP with her class. Therefore the P2 class became the treatment group and, as this was the only P2 class in the school, a Primary 3 class was selected to become the control group.

(i) Treatment Condition

The treatment group was led by their teacher who had completed an appropriate MISP training course. The P2 children took part in a 20-minute massage routine for one session per week, over a period of six weeks. During each massage session, pupils worked in pairs (which varied each week), massaging each other whilst fully clothed. The teacher taught the children a variety of massage moves by demonstrating in the air, and incorporated these into a story to make them easier for the children to learn. Each move had a name associated with the action, such as “climbing a rope” when massaging up and down the arm, or “hairdresser” when massaging the head. The teacher encouraged the children to discuss the massage and tell their partner what they liked and disliked. The ages of the children in the treatment condition ranged from 74–92 months (M= 77.6).

(ii) Control Condition

This control group was led by their class teacher. The P3 pupils participated in sessions with similar characteristics to the massage sessions (that is, story telling, working with others, physical movement) but without the actual massage component. As with the pupils in the treatment condition, the children in the control condition took part in a 20-minute routine for one session per week, over a period of six weeks. The age of the children participating in the control condition ranged from 84-95 months (M = 89.9).

The methodology and procedures for the study were subject to approval and supervision by the local authority’s Psychology Service Research Ethics Board, which requires all research projects to meet the standards set by, firstly, the British Psychological Society (2000) *Ethical Principles for Conducting Research With Human Participants* and secondly the Joint Committee on Standards (1994)

Programme Evaluation Standards. This ensured that key issues such as confidentiality, anonymity, participant's rights, and informed consent were handled appropriately.

Method

The following measures were used to assess change:

Classroom Observations

To gain a measure of the children's on-task behaviour, repeated observations were used. Each of the 28 pupils (14 in each condition) was observed by one of two observers every 60 seconds throughout a 30-minute period, once per week. During each one-second time sample, the observer noted whether the child was on-task or off-task at that specific time. "On-task" was defined as: working on any task that the teacher has instructed the child to carry out. "Off-task" was defined as: any behaviour that did not correspond with the expected task, such as chatting to friends when not instructed or wandering round the classroom.

Prior to the intervention phase, pupils were observed in the classroom in order to gain a baseline measure of their on-task behaviour. Following the initial session of both groups, a further four observation sessions were completed over a five week period, at the same time each week. (School holidays between observation 2 and 3 meant that no observation took place that week.) During each observation session, one child was selected to be monitored by both observers to allow a measure of inter-rater reliability to be established. A coefficient Kappa of 0.794 confirmed a high level of agreement between observer ratings.

Behavioural Indicators Of Self-Esteem (BIOS)

In order to examine changes in the children's self-esteem during the six-week intervention, Behavioural Indicators Of Self-esteem (BIOS) questionnaires (Burnett, 1998) were completed by class teachers. The BIOS scale was developed as an instrument to aid teachers in observing and measuring behaviours associated with self-esteem; alpha reliability coefficients reported by Burnett were greater than 0.9 and test-retest reliabilities over a 10 week and 20 week period were 0.82 and 0.73 respectively. The BIOS scale comprises of 13 multiple-choice items which are rated from "never" to "always". Scores are assigned to each rating and the average of these scores gives a numerical measure of self-esteem.

Prior to the commencement of the treatment and control conditions, the teachers completed a BIOS questionnaire for each child whose parents had given consent. The BIOS instructs teachers to think about the child's behaviour over the previous two weeks when completing these questionnaires. Teachers completed another BIOS questionnaire at the end of the six-week intervention period. Given the short time-span of the project, it was not felt appropriate to administer repeated BIOS questionnaires during the intervention period.

Pupil Focus Group

A focus group was employed to seek the views of the children involved in the MISP. Robson (2000) defines a focus group as “a type of semi-structured interviews carried out in a group setting. The main benefit of group interviews is the possibility of additional insights being gained through the interaction of ideas and suggestions from group members.” (p93) Therefore it was felt a focus group would be an appropriate way to collect data from the children.

Letters were sent to 10 randomly-selected parents from the treatment class detailing the focus group procedure and asking their permission for their child to participate in the group. These letters were followed up by phone calls during which verbal consent was gained from 8 parents. Once consent was agreed the depute head teacher from the school approached the children to ensure they were comfortable taking part in the group. All children gave consent to take part, and therefore there were 8 children in the focus group.

Children were reassured that all comments made in the focus group were completely confidential and that, although they would be included in the final report, all comments would be made anonymous. Children were also informed there would be no negative repercussions if they chose not to participate in the focus group. The group was conducted by an experienced psychologist and a research assistant, who encouraged the children to discuss their experience of the MISP. The focus group was recorded and transcribed, and then the tape was erased.

The focus group was held in a quiet classroom within the participating school. The group lasted approximately 30 minutes with questions assessing the children’s views regarding the activity, likes and dislikes about the programme, feelings generated by the activity, social aspects of class behaviour and suggestions for improvement.

Parent Questionnaires

Questionnaires were sent to the 23 parents/guardians of all children participating in the treatment group activity and the 27 parents/guardians of the children taking part in the control group activity. All questionnaires were posted to parents accompanied by a letter assuring confidentiality and a stamped addressed envelope. A week later questionnaires were sent to all parents again requesting the return of the completed questionnaire. All questionnaires were anonymous.

Of the 50 questionnaires sent out, 20 were returned (40%). This consisted of 9 questionnaires giving parents’ views of the treatment condition and 11 questionnaires giving parents’ views of the control condition. Gillham (2000) suggests that a return rate of less than 30% places uncertainty on the validity of the data collection method and the results. The return rate of questionnaires in this study exceeded this minimum level, and therefore the data from these was considered to be valid.

The questionnaire was designed to assess parents' perceptions of changes in their children's behaviours over the course of the six-week intervention period. All aspects measured were chosen because previous research studies had suggested that massage has a positive influence on these behaviours. Behaviours examined by the closed questions included aggression (Diego et al, 2002), co-operation (Escalona, Field, Cullen, Hartshorn & Cruz, in review), sensitivity (Trower, unpublished), happiness (Khilnana, 2003) and social skills (Escalona et al, 2001). Further open-ended questions were also included in the questionnaire for the treatment group parents to ensure they had an opportunity to discuss elements of the programme they particularly liked and to suggest improvements. The questionnaire also contained space for the parents to include any other comments they wished to express regarding the MISP.

Teacher Interview

The class teacher from the treatment condition took part in an individual semi-structured interview which explored her views about the MISP and any perceived changes within the classroom. The interview lasted approximately 20 minutes and was recorded with the teacher's agreement; following transcription, the tape was erased.

PART 3: RESULTS

Classroom Observations

Since concentration increases with age during the pre-school and school-age years (Milich, 1984, Flavell, 1985; Ridderinkhoff & van der Molen, 1995; Ruff & Lawson, 1990; Yendovitskaya, 1971), the initial on-task behaviour of the older control group is expected to be higher due to these developmental differences, and this appears to be the case from visually scanning the data; see Figure 1 for an illustration of on-task behaviour, and Table 1 for standard deviations for pre- and post-intervention. However, a t-test showed that this difference was not significant ($t=1.407$, $df = 25$, $p=0.086$ one-tailed).

Figure 1: Mean observed time spent on-task

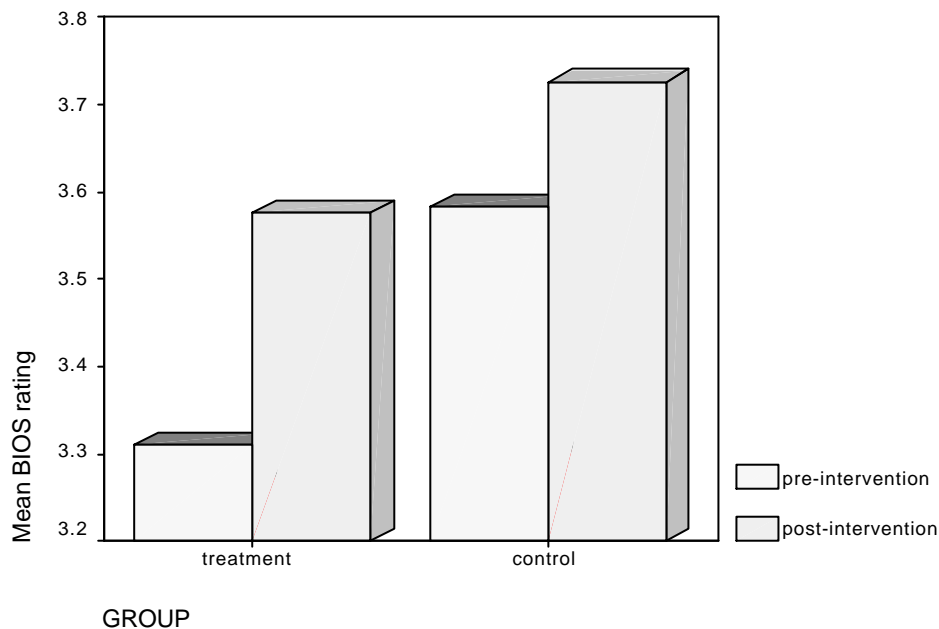


Table 1: On-task behaviour means and standard deviations for pre- and post-intervention

| Condition | Pre-Intervention | | Post-Intervention | |
|-----------|------------------|------|-------------------|------|
| | Mean | SD | Mean | SD |
| Treatment | 16 | 3.8 | 23.7 | 3.3 |
| Control | 21.55 | 3.17 | 23 | 2.43 |

In order to determine whether the treatment group had improved more than the control group, an ANCOVA was carried out to compare post-intervention on-task behaviour in the treatment and control groups after adjusting for pre-intervention differences in on-task behaviour. Results showed a significant effect of the between-subjects factor, group ($F_{1,22} = 4.575$, $p=0.044$), confirming that the on-task behaviour for the treatment group increased significantly in comparison to the control group.

Both groups were then examined separately. A one-way repeated-measures analysis of variance (ANOVA) was carried out for the 5 sessions of the treatment condition and this showed there was a significant difference between the five sessions ($F_{4, 36} = 10.28, p < 0.001$). In comparison, the control group's on-task behaviour did not change significantly across the observation sessions ($F_{4, 40} = 1.12, p = .36$, not significant).

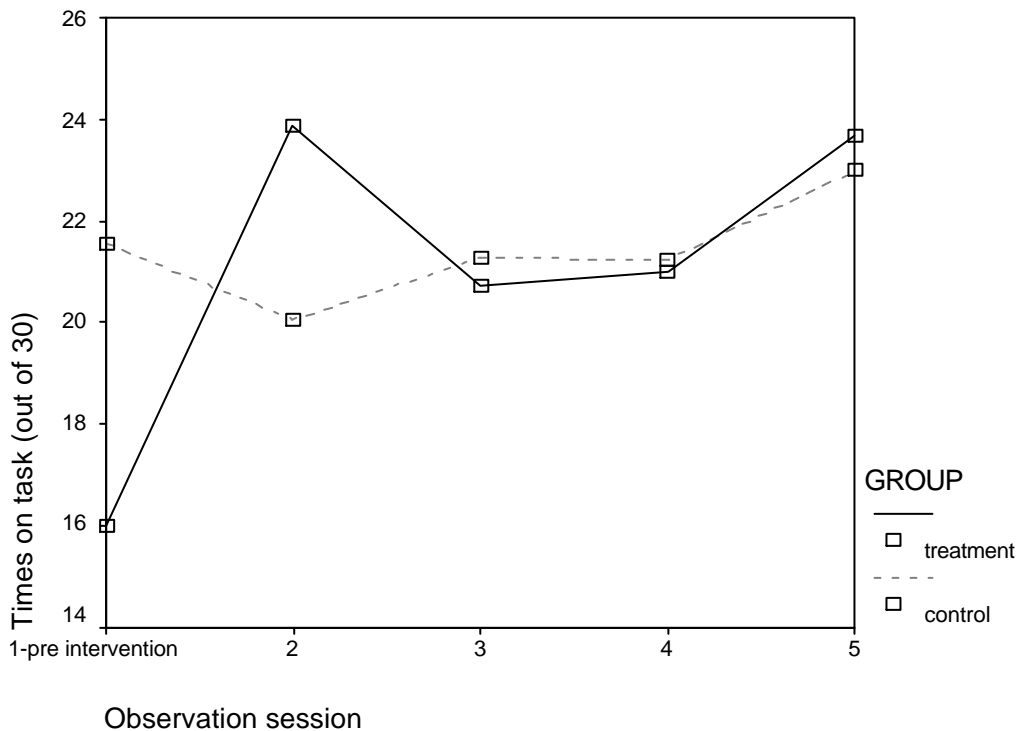
In order to identify during which stage of the intervention the improvement in on-task behaviour occurred for the treatment group, the on-task behaviour means for all five observation sessions were compared; see Table 2 for means and standard deviations for all observations.

Table 2: Means and standard deviations for on-task behaviour in the treatment condition

| Pre-Intervention | | Observation 2 | | Observation 3 | | Observation 4 | | Post-Intervent. | |
|------------------|-----|---------------|------|---------------|------|---------------|------|-----------------|-----|
| Mean | SD | Mean | SD | Mean | SD | Mean | SD | Mean | SD |
| 16 | 3.8 | 23.9 | 3.72 | 20.7 | 3.83 | 21 | 3.27 | 23.7 | 3.3 |

By looking at Figure 2, it appears an improvement in on-task behaviour following intervention occurred by observation 2, that is, by the first observation after intervention, and this improvement was sustained. Post hoc Tukey's HSD tests confirmed this. It was found that on-task behaviour was significantly lower at the pre-intervention observation compared to all other observations (at 0.05 level of significance). No other comparisons were significant.

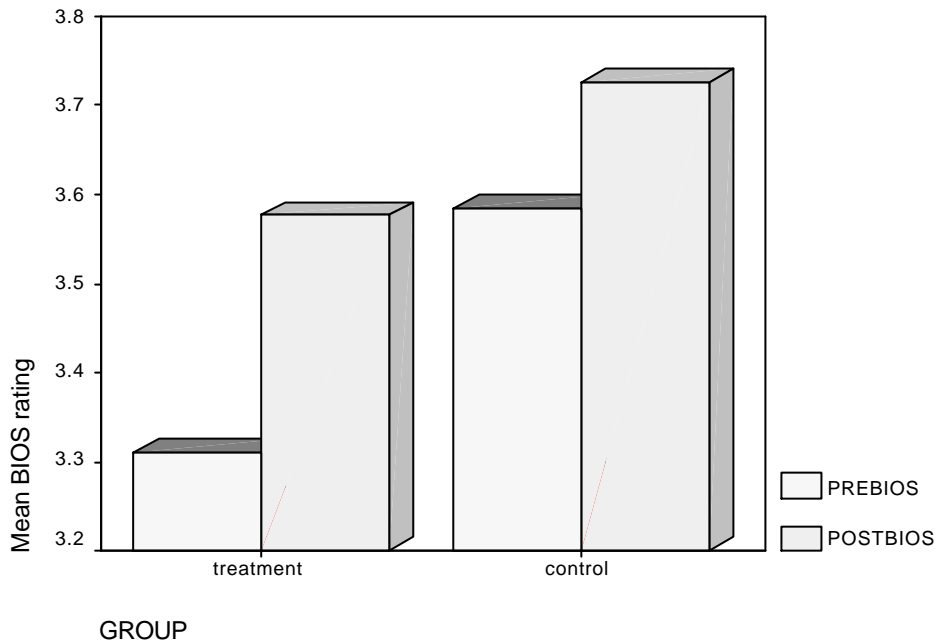
Figure 2: Mean observed time spent on-task



Behavioural Indicators Of Self-Esteem (BIOS)

Pre- and post-intervention self-esteem scores are presented in Figure 3. Although visual inspection of these graphs might suggest the groups differ in self-esteem pre-intervention, a t-test showed this difference was not significant ($t=1.336$, $df = 26$, $p = 0.097$ one-tailed).

Figure 3: Mean BIOS self-esteem scores



Repeated measures t-tests showed that both groups significantly improved their self-esteem scores post-intervention (treatment group $t = -3.669$, $df = 11$, one tailed $p = .002$; control group $t = -2.391$, $df = 13$, $p = .015$ one tailed). In order to determine whether the treatment group had improved more than the control group, an analysis of covariance (ANCOVA) was carried out to compare post-intervention self-esteem in the treatment and control groups after adjusting for pre-intervention self-esteem differences. The results showed no significant effect of group ($F_{1,23} = 2.103$, $p=0.161$).

Pupil Focus Group

Children from the treatment condition participated in a focus group, and comfortably discussed the massage sessions, recalling names of the moves, partners and feelings generated. Analysis of the discussion revealed the following themes:

- **enjoyment.** The children easily identified various aspects of the activity they particularly enjoyed, such as certain massage moves. Most indicated they enjoyed the touch component of the MISP.
"I like it when they are doing the love heart bit. It's really very tickly."
"I like the way it feels when other people are doing it to you."

- **feelings.** They reported a variety of feelings, most of which were positive. However a few negative feelings were reported, all of which were associated with their partners doing the massage moves incorrectly.
“Soothing.”
“(I don’t like) sometimes when people do it they squeeze my arms hard.”
- **social relationships.** The children could name several classmates with whom they became friends with, as they worked with different partners each week. They also particularly enjoyed working with partners.
“(I prefer working) with other people.”
- **home involvement.** The children particularly mentioned practising the moves at home with their parents and siblings, most of whom also found the experience enjoyable.
“They (parents) think it’s nice and soft when I do it.”
“My big brother thinks it’s nice.”
- **suggestions.** Suggestions for change included having better stories or eliminating stories altogether and ensuring that the child conducting the massage doesn’t apply too much pressure. Most suggested no change.
“No story... because it’s boring.”
“I hate doing the bunny hop when they squeeze their nails into my skin.”

Teacher Interview

Analysis of the discussion which took place during the semi-structured interview with the teacher conducting the MISP revealed the following themes:

- **children’s enjoyment.** Although the teacher felt the children generally enjoyed the MISP sessions each week, she felt that the enjoyment varied greatly from session to session.
“It has been varied...it’s been difficult to establish the routine.”
- **teacher’s enjoyment.** Despite experiencing enjoyment while conducting the MISP, the teacher also commented that pressure of time reduced the potential pleasure obtained from the sessions.
“I’ve enjoyed doing it, always been interested in it.”
“I would like to have done it more frequently from the beginning.”
- **behavioural change.** The teacher felt that the children’s confidence might have increased, and that more frequent sessions were required to really make a difference.
“I think they might be more confident and less inhibited.”
“Because it’s only once a week I don’t really feel that it’s done very much.”

- **time requirement.** The teacher thought that the MISP was an effective use of the children's time in school, based on her knowledge and personal experience of the programme.

"Having been through the training programme...I think it will help."

- **future plans.** The teacher intends to continue the MISP and to increase the frequency of the sessions, with the aim of helping the children establish a routine more easily.

"Hoping it expands and becomes more widely available"

- **suggestions.** Ideas for improvements included an increase in the frequency of the massage sessions. A further suggestion was to shorten the time requirement for becoming a MISP trainer.

"a morning in-service or full day (instead of a full training course.)"

Parent Questionnaires

Frequency data for the completed parent questionnaires is displayed below. Table 3 contains responses to specific aspects of the treatment and control condition activities, and Table 4 contains frequency data examining parents' reports of changes in their child's behaviour since starting the treatment and control condition activities.

Table 3: Number of responses to parent/guardian questionnaire for the treatment group and the control group. (D/K = don't know)

| Question | Treatment Condition | | | Control Condition | | |
|---|---------------------|----|-----|-------------------|----|-----|
| | Yes | No | D/K | Yes | No | D/K |
| Were you given enough details about your child's programme? | 6 | 3 | 0 | 5 | 5 | 1 |
| Is the programme an effective use of your child's time in school? | 7 | 0 | 2 | 5 | 1 | 5 |

Table 4: Have you noticed any changes in the following other areas of your child's behaviour over the last six weeks? (Number of responses to this question for the treatment group parents and the control group parents.)

| Question | Treatment Condition | | | Control Condition | | |
|---------------|---------------------|------|----------|-------------------|------|----------|
| | Decrease | Same | Increase | Decrease | Same | Increase |
| Aggression | 1 | 8 | 0 | 1 | 9 | 1 |
| Cooperation | 0 | 5 | 4 | 0 | 6 | 5 |
| Sensitivity | 0 | 6 | 3 | 0 | 9 | 2 |
| Happiness | 0 | 4 | 5 | 0 | 6 | 5 |
| Social skills | 0 | 4 | 5 | 1 | 5 | 5 |

Due to the small sample size, analysis was carried out using a Fisher's Exact Probability Test but no significant differences between the groups was found for any of the questions.

The following themes emerged from additional comments made in the questionnaire replies, from parents whose children experienced the MISp:

- **positive perspective.** Parents of the children who participated in the treatment condition were very positive about the MISp and reported their child's enjoyment of the massage sessions.
"My (child) really enjoyed the whole experience."
"I felt my child really enjoyed doing the massage."
- **family involvement.** Most parents also commented that the children brought their new-found knowledge of massage home with them and practised on members of the family.
"My daughter was very keen to try some of the massage moves on me!"
"I tell people if they have a headache that (child) could help with massage."
- **behavioural change.** Parents identified specific aspects of their child's behaviour that they felt had improved following participation in the MISp or that they thought would change after further massage sessions.
"(My child has) gained more confidence at school all round."
"(The MISp) is showing children ways of caring for each other."
- **benefits.** Parents considered the treatment sessions to be beneficial to the pupils, that they should be more frequent and that the MISp be expanded further within schools.
"Do more of it."
"(This) should be carried through mainstream."
- **suggestions.** Ideas for improvement included providing further information about the MISp and massage to parents, and developing ways for parents to become more involved in the MISp.
"Perhaps the parents could have a booklet or instruction leaflet."
"Maybe to come into the classroom to see the children doing it."

PART 4: DISCUSSION, CONCLUSION & RECOMMENDATIONS

The current study examined factors which have previously been found to be associated with improvements following massage. The main factors examined were concentration (as measured by on-task behaviour) and self-esteem (as measured using BIOS questionnaires.) Data collected from the parent questionnaire allowed consideration of improvements in other aspects of child behaviour, namely, aggression, co-operation, sensitivity, happiness and social skills.

Comparison of on-task behaviour in both groups indicated a significant difference between the treatment and control groups, when pre-intervention levels were taken into account. On-task behaviour was significantly higher for the children in the treatment group following the six-week intervention. This suggests that the massage element of the MISP has a positive impact on the concentration of primary school children.

Further analysis revealed an immediate positive effect on children's on-task behaviour in the treatment group, which was sustained throughout the intervention. This finding adds to previous research carried out with specialised populations (Field et al 1998a; Khilnana et al 2003). In comparison, children in the control condition did not show any significant change in on-task behaviour. The results suggest that the MISP appears to have an immediate effect (which has also been found in other studies including Field et al, 1998b, and Diego et al, 2002), and then reaches a ceiling level after one session (as shown in Figure 2.) The school holiday between observation 2 and 3, which resulted in the children missing a week of the MISP, may have had an impact on the drop in on-task behaviour. Although this drop was not significant, it may suggest that the massage sessions need to be maintained in order to sustain the high level of on-task behaviour observed after the initial session.

Analysis of the BIOS questionnaires completed by the two teachers showed the self-esteem of children in the treatment condition increased significantly. However, children in the control condition also showed a significant increase in self-esteem. Therefore it is not possible to conclude that the MISP in particular has a significant impact upon the self-esteem of primary school aged children. Indeed, this result could indicate that non-massage factors, such as extra attention and opportunity to work with others, may positively influence a child's self-esteem, regardless of the task in which they are engaged.

In the focus group, the children talked positively about their participation in the MISP. They particularly liked the touch component and the social aspect. Children in the treatment condition appeared enthusiastic about the MISP and used their new skills outside the classroom, for instance, at home with family members. (This finding was reiterated in the parent questionnaire, in which parents also commented on their child's ability to massage family and friends and their enjoyment arising from this.)

Communication between the children during the sessions is an area which may require more detailed attention as some children reported feeling uncomfortable when too much physical pressure was applied. The MISP focuses on communication by encouraging children to discuss the massage throughout the sessions but it may be necessary for teachers to specifically encourage more effective communication.

Despite reports of some negative feelings arising during the massage sessions, it appears that when the MISP sessions are carried out correctly, the children thoroughly enjoy giving and receiving the massage.

The teacher in the treatment condition had voluntarily completed the MISP training course and had high expectations of the programme. No substantial differences in classroom behaviour were reported by the teacher during the semi-structured interview (though she had identified an increase in self-esteem through the BIOS questionnaires.) Where minor differences in children's behaviour were mentioned by the teacher, she added that she considered many other factors had possibly contributed to changes in child behaviour and did not believe the specific activities in the treatment condition were solely responsible for any positive changes over the six-week intervention period. Difficulties implementing the MISP - partially due to limitations placed on the frequency of the sessions by the research project - may have restricted the benefits produced by the programme over the short time-scale in which the research was conducted.

Responses to parent questionnaires suggested parents perceived no significant differences in a variety of child behaviours following participation in either the treatment or control condition. However, the return rate for these questionnaires meant the sample size was small, and this may have biased the results; therefore this finding should be evaluated with caution. Information collected from open-ended questions identified a positive perception of the MISP, despite the perceived lack of change.

The overall agreement between the teacher involved in the treatment condition and the parents of children involved in the treatment condition suggests that unlike changes found in concentration and self-esteem, there was no significant change in the other areas of child behaviour examined, namely, aggression, co-operation, sensitivity, happiness and social skills. This is in contrast to some results of previous studies (Trower, unpublished; Field et al, 1998a; Diego et al, 2002; Khilnana, 2003).

There were limitations to this current study. Due to time constraints set by funding parameters, the participating school had to be identified quickly, which restricted the number of potential schools willing to participate in this project. It was not possible to identify a school, willing to begin the MISP within the time specified by this project, which had two classes of children of the same age. This limitation was addressed in this study to some extent by using an ANCOVA, but future research could ensure pupils in each condition are the same age, in order to take developmental differences into account.

In addition, the data collected throughout this study was restricted due to the small sample size and time constraints. Observations would benefit from being conducted with a larger number of children and perhaps throughout several schools. It may also be beneficial to conduct research over a longer time period to allow longer-term benefits of the MISP to be examined in more detail.

Further limitations were imposed on the study due to the low return rate of the parent questionnaires. The size of the parent sample in this study was relatively small, as only two classes of children participated, and the low rate of return for the parent questionnaires reduced this number further, which may leave the data open to bias.

Future studies would benefit from larger sample sizes to ensure a more accurate representation of the adult population within the data collected. It may even be necessary to try to collect data from parents using another method of data collection, such as telephone interviews, e-mail or other internet-based methods.

CONCLUSION

This study found that P2 pupils who participated in the MISP over a six-week period made significant improvements in concentration (as measured by on-task behaviour), compared to a control group of P3 children. Although the P2 pupils showed a significant gain in self-esteem following participation in the MISP, there were similar significant gains for the P3 pupils in the control group. Support for claims that the MISP influences other aspects of child behaviour (namely, aggression, co-operation, sensitivity, happiness and social skills) was not found. This study confirmed that the MISP is viewed positively by the majority of stakeholders (children, parents and teachers), with all involved expressing a desire to continue participating in the activity.

RECOMMENDATIONS

On the basis of the results found in this study, the following recommendations are made:

- R1: continuation of MISP.** It is suggested that, due to the positive response by the participants and the improvements in concentration arising from it, the MISP should continue within Renfrewshire, subject to the recommendations below.
- R2: future research.** It is suggested that future research should be conducted with a larger sample and over a longer period to allow more substantial evaluation of the MISP.
- R3: parental involvement.** It is suggested that the MISP should encourage more parental involvement and understanding, possibly through a short training programme or a parent booklet.
- R4: message stories.** It is suggested that the story-telling element of the MISP should be improved to make stories more interesting and engaging for young children.
- R5: communication.** It is suggested that communication between pupils should be facilitated further during participation in the MISP to ensure children do not experience negative feelings or misunderstandings.

PART 5: REFERENCES

- Ainsworth, M., Blehar, M., Waters, E., & Wall, S. (1978). *Patterns of Attachment*. Hillsdale, NJ: Erlbaum.
- Arkwright, N. (1998). *An introduction to sensory integration*. Texas: Therapy Skills Builders.
- Ayres, A. (1985). *Sensory integration and the child*. Los Angeles: Western Psychological Services.
- Bowlby, J. (1953). *Child Care and the Growth of Love*. Harmondsworth: Penguin.
- Bowlby, J. (1958). The nature of a child's tie to his mother. *International Journal of Psychoanalysis*, 39, 350-373.
- British Psychological Society (2000). *Code of Conduct, Ethical Principles and Guidelines*. London: British Psychological Society.
- Burnett, (1998). Measuring behavioural indicators of self esteem in the classroom. *Journal of Humanistic Education and Development*, 37(2), 107-116.
- Carlson, M. (1998). Understanding the "Mother's Touch" Available online at http://www.med.harvard.edu/publications/On_The_Brain/Volume7/Number1/commentary.html (22 April 2005).
- Denzin, N. (1988). *The Research Act: A theoretical introduction to sociological methods*. NJ: Prentice-Hall.
- Diego, M., Field, T., Hernandez-Reif, M., Shaw, J., Rothe, E., Castellanos, D., & Mesner, L. (2002). Aggressive adolescents benefit from massage therapy. *Adolescence*, 37, 597-607.
- Escalona, A., Field, T., Singer-Strunck, R., Cullen, C., & Hartshorn, K. (2001). Brief report: Improvements in the behaviour of children with autism following massage therapy. *Journal of Autism and Developmental Disorders*, 31(5), 513-516.
- Escalona, A., Field, T., Cullen, C., Hartshorn, K., & Cruz, C. (In Review). *Behaviour problem pre-school children benefit from massage therapy*.
- Field, T., Schanberg, S., Scafidi, F., Bauer, C., Vega-Lahr, N., Garcia, R., Nystrom, J., & Kuhn, C. (1986). Tactile/kinesthetic stimulation effects on preterm neonates. *Pediatrics*, 77, 654-658.

- Field, T., Morrow, C., Valedon, C., Larson, S., Kuhn, C., & Schanberg, S. (1992). Massage reduces anxiety in child and adolescent psychiatric patients. *Journal of the American Academy of Child and Adolescent Psychiatry*, 31(1), 125-131.
- Field, T., Ironson, G., Scafidi, F., Nawrocki, T., Goncalves, A., Burman, I., Pickens, J., Fox, N., Schanberg, S., & Kuhn, C. (1996). Massage therapy reduces anxiety and enhances EEG patterns of alertness and math computations. *International Journal of Neuroscience*, 56, 197-205.
- Field, T., Quintino, O., Hernandez-Reif, M., & Koslovsky, G. (1998a). Adolescents with Attention Deficit Hyperactivity Disorder benefit from Massage therapy. *Adolescence*, 33(129), 103-108.
- Field, T., Schanberg, S., Kuhn, C., Field, T., Fierro, K., Henteleff, T., Mueller, C., Yando, R., Shaw, S., & Burman, I. (1998b). Bulimic adolescents benefit from massage therapy. *Adolescence*, 33(131), 555-563.
- Field, T. (1999). American adolescents touch each other less and are more aggressive towards their peers as compared with French adolescents. *Adolescence*, 34(136), 753- 758.
- Flavell, J. (1985). *Cognitive development*. Englewood Cliffs, NJ: Prentice Hall.
- Gillham, B. (2000). *Developing a questionnaire*. London: Continuum.
- Harlow, H. (1958). The nature of love. *American Psychologist*, 13, 673-685.
- Hart, S., Field, T., Hernandez-Reif, M., & Lundy, B. (1998). Preschoolers' cognitive performance improves following massage. *Early Child Development and Care*, 143, 59-64.
- Joint Committee on Standards (1994). *Programme Evaluation Standards*. London: Sage Publications.
- Khilnana, S., Field, T., Hernandez-Reif, M., & Schanberg, S. (2003). Massage therapy improves mood and behaviour of students with Attention Deficit/Hyperactivity Disorder. *Adolescence*, 38(152), 623-638.
- Massage In Schools (2004). Available online at <http://www.messageinschools.co.uk> (12 January 2005).
- Milich, R. (1984). Cross-sectional and longitudinal observations of activity level and sustained attention in a normative sample. *Journal of Abnormal Child Psychology*, 12, 261-275.
- Prescott, J. (1990). Affectional bonding for the prevention of violent behaviors: Neurobiological, psychological and religious/spiritual determinants. In T. Field (2002), Violence and touch deprivation in adolescents. *Adolescence*, 37, 735-749.

Ridderinkhoff, K. & van der Molen, M. (1995). A psychophysiological analysis of developmental differences in the ability to resist interference. *Child Development*, 66, 1040-56.

Robson, C. (1993). *Real World Research: A Resource for Social Scientists and Practitioner Researchers*. Oxford: Blackwell.

Robson, C. (2000). *Small-Scale Evaluation*. London: Sage Publications.

Ruff, H. & Lawson, K. (1990). Development of sustained focused attention in young children during play. *Developmental Psychology*, 26, 85-93.

Trower, C. (2004). Available online at <http://www.kidscape.org.uk/assets/downloads/conference091104/CarolTrower-PeerRelaxation-forwebsite.pdf> (10 May 2005).

Trower, C. (unpublished). *Promoting Child Mental Health Through an Inclusive Peer Massage Programme in a Primary School*.

Uvnas-Moberg, K. (1998). Oxytocin may mediate the benefits of positive social interactions and emotions. *Psychoneuroendocrinology*, 23(8), 819-835.

Yendovitskaya, T. (1971). Development of attention. In A. Zaporozhets & D. Elkonin (Eds.), *The psychology of preschool children*. Cambridge, MA: MIT Press.