A PORTFOLIO OF ACADEMIC, CLINICAL AND RESEARCH WORK

Incorporating:
Eating attitudes and dieting behaviour in British eight to eleven year-olds.

Volume I

Submitted by
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ACADEMIC SECTION
INTRODUCTION

This section contains five essays completed over the three year course. Four essays relate to issues from the four core clinical areas, and one essay covers issues relating to Long term Disabilities.
Adult Mental Health Essay

Year I

Discuss the roles of psychological and physiological factors in the onset and maintenance of Panic Disorder.
It will be argued that the available evidence does not support theories suggesting that panic disorder is purely a physiological condition. Evidence from studies looking at drug efficacy, biological challenge agents, genetic factors, and the hyperventilation model will be reviewed to support this argument. Psychological theories of panic disorder, including interoceptive conditioning, the cognitive model and information processing approaches will be considered, and it will be argued that there is much evidence to support the suggestion that psychological factors play an important role in the maintenance of panic disorder, and some emerging evidence to suggest that psychological factors alone can account for the onset of the disorder.

Klein (1964) argues that panic disorder results from a genetically transmitted neurochemical abnormality, and that panic anxiety is qualitatively different from non-panic anxiety. This argument is based mainly on the observation that there is a differential effect of certain drugs on panic and non-panic anxiety: tricyclic antidepressants (e.g. imipramine) block panic attacks, but not anticipatory anxiety, and benzodiazepines reduce anticipatory anxiety without blocking panic attacks (Klein, 1964). However, later research showed that imipramine alleviates generalized anxiety (Kahn, McNair, Lipman, Covi, Rickels, Downing, Fisher & Frankenthaler, 1986) and when prescribed in sufficient doses, benzodiazepines do alleviate panic attacks (e.g. Dunner, Ishiki, Avery, Wilson & Hyde, 1986). It has been found that both benzodiazepines (Noyes, Anderson, Ciancy, Crowe, Slyman, Ohoneim & Hinrichs, 1984) and tricyclic antidepressants (Marks, 1983a) have general effects on panic attacks and anticipatory anxiety. Furthermore, it is unclear how antidepressant drugs alleviate anxiety disorders: their effects may be indirect, via depression mediation (Marks, 1983a) or by facilitating exposure to feared stimuli (Telch, Agras & Taylor 1985). This then, argues against the suggestion that there is a specific neurochemical abnormality responsible for panic disorder rather than more general forms of anxiety.

Biological challenge agents have been found to produce physiological changes which provoke panic in subjects with a history of panic attacks, but rarely do so in normal control subjects (McNally, 1990). Such challenges include: oral administration of caffeine (Charney, Heninger & Jatlow, 1985), infusions of sodium lactate (Liebowitz,
Fyer, Gonnan, Dillon, Appleby, Levy, Anderson, Levitt, Palij, Davies & Klein, 1984) and inhalation of oxygen and carbon dioxide (Griez, Lousberg, van den Hout & van der Molen, 1987). Dager, Cowley & Dunner (1987) argue that challenges activate an inherited biochemical abnormality, which plays a role in the onset of panic disorder. However, there is evidence that not all panic disordered patients panic, and that it is the interpretation of the induced sensations that determine whether an individual will panic as a result of a physiological challenge (Clark, 1997). It has been found that after sodium lactate infusions, only 60-90% of panic patients and 20% of controls panic (Liebowitz et al, 1984), and that the subjective experiences of anxiety and physiological arousal are equal for panic patients and controls (Ehlers, Margraf, Roth, Taylor, Maddock, Sheikh, Kopell, McClenahan, Gossard, Blowers, Agras & Kopell, 1986). In response to various physiological challenges, panic patients show less anxiety and panic when they are told sensations are only due to the effects of the challenge agent (Rapee, Mattick & Murrell, 1986; Clark, Salkovskis, Middleton, Anastasiades, Hackmann & Gelder, in preparation), when they are told to expect pleasant sensations (van der Molen, van den Hout, Vroeman, Lousberg & Griez, 1986) and when they have an illusion of control over the effects of the challenge agent (Sanderson, Rapee & Barlow, 1989). Taken together, these studies show that responses to challenge agents are not merely physiologically determined, and so argue against a purely biological view of panic disorder.

The physiological accounts described above imply the existence of a latent biological risk factor which, when activated, has a causal role in the onset or maintenance of panic disorder. Klein (1964) and Dager et al (1987) suggest that this risk factor is inherited. However, the evidence for a genetic element in panic disorder is inconclusive. Crowe, Noyes, Pauls & Slymen (1983) found a 22% morbidity risk for first degree relatives of panic disorder patients, compared to a 2% risk for controls. Torgersen (1983) found that concordance rates of panic disorder amongst twins of panic patients was 31% for monozygotic twins and 0% for dizygotic twins. To date, studies examining concordance rates amongst twins reared apart are lacking, so it is impossible to discover whether these results show the existence of a genetic element, or are due to learning and other environmental effects (Roth, 1984).
Hyperventilation has been suggested as playing a causal role in the onset and maintenance of panic disorder. Ley (1985) suggests that panic results from dysfunctional breathing patterns, so those who are biologically prone to hyperventilation will also be at risk of developing panic disorder. Support for this theory comes from findings that breathing retraining has been successfully used as a treatment for panic disorder (Clark, Salkovskis & Chalkley 1985; Salkovskis, Jones & Clark, 1986; Hibbert & Chan, 1989) and that 60-80% of panic disorder patients recognise similarities between hyperventilation symptoms and panic attacks (Garssen, van Veenendall & Bloemink, 1983). However, Hibbert & Pilsbury (1989) found that only 47% of subjects with panic disorder hyperventilated during naturally occurring panic attacks, and symptoms were worse in spontaneously occurring attacks than in response to hyperventilation (Holt & Andrews 1989). It has also been suggested that breathing retraining is only effective in reducing panic frequency for those patients who usually hyperventilate during naturally occurring attacks (Craske, Rowe, Lewin & Noriega-Dimitri, 1997). For most panic patients, voluntary hyperventilation leads only to the experience of panic symptoms, but not actual panic (Clark & Hemsley, 1982; Rapee, 1986). Biological proneness to hyperventilation is therefore an insufficient account of the onset or maintenance of panic disorder (Edelmann, 1993), and additional psychological factors (e.g. as negative interpretation of hyperventilation symptoms) are required in order for hyperventilation to trigger a panic attack.

A search for a biological marker of panic disorder has therefore, met with little success. The biological theories above cannot account for the onset of panic disorder without the addition of psychological factors. It is possible that the success of some drug therapies, once thought to indicate that panic disorder is a physiological condition, may instead be due to general anxiety decreasing effects, and physiological factors have a role in the maintenance of panic disorder only insofar as they have a role in anxiety disorders generally.

Psychological theories of panic disorder have evolved from the “fear of fear” hypothesis (e.g. Goldstein & Chambless, 1978; McNally, 1990). Early treatments for panic disorder with agoraphobia successfully used exposure techniques, and panic
Adult Mental Health Essay

disorder has been conceptualised as a phobic fear of panicking (Edelmann, 1993). More recent psychological approaches have studied the way that patients interpret and process information, arguing that these are crucial aspects in the onset and maintenance of the disorder.

Goldstein & Chambless (1978) argue that, in panic patients, a process of Pavlovian interoceptive conditioning leads to internal bodily changes becoming the conditioned stimuli for panic attacks (conditioned response). In support of this view, there have been many reported successes of treatments involving repeated exposure to internal bodily changes, for example, using physiological challenge agents (Griez & van den Hout, 1986; van den Hout, van der Molen, Griez, Lousberg & Nansen, 1987). However, the success of treatments based on this theory does not necessarily imply that interoceptive conditioning is implicated in the onset of panic disorder, and furthermore, it is difficult to distinguish between a trigger and a symptom of a panic attack (McNally, 1990).

The Cognitive Model of Panic (Clark, 1986) argues that the crucial aspect of panic disorder is the tendency to make catastrophic misinterpretations of bodily sensations, so that the sensations are interpreted as more dangerous (to either physical or mental health) than they really are. This leads to increased anxiety, which in turn increases somatic symptoms. Panic disorder is then maintained by the use of cognitive or behavioural strategies, which are intended to prevent harm (such as holding onto something to prevent fainting), but which prevent the disconfirmation of misinterpretations (Clark, 1997). Clark (1988) also suggests that catastrophic misinterpretation need not always be conscious, thus allowing the theory to explain nocturnal panic attacks as well as both "cued" and "spontaneous" panic attacks.

There is much evidence in support of this model. Ottaviani & Beck (1987) found that all of their sample of panic patients said their attacks were triggered by the misattribution of a physical sensation, Hibbert (1981) found that the first thing patients noticed in an attack was a physical sensation, and Ehlers, Margraf, Roth, Taylor & Birbaumer (1988) noted that patients panicked after false heart-rate feedback. Using questionnaire measures, it has been found that panic disorder patients
are more likely than other anxiety disorder patients and non-anxious controls to interpret ambiguous bodily sensations as signs of impending disaster (McNally & Foa, 1987; Harvey, Richards, Dziadosz & Swindell, 1993; Clark, Salkovskis, Ost, Breitholtz, Westling, Koehler, Jeavons & Gelder, 1997). Studies involving non-clinical samples who have experienced occasional panic attacks show that reported fear of losing control, “going crazy” or of the recurrence of panic attacks is very uncommon (e.g. Norton, Dorward & Cox, 1986).

As already discussed, subjects’ responses to biological challenge agents depend on their interpretations of the physiological results of the challenge, thus lending further support to the cognitive model. Sanderson (1988) and Yeragani, Balon & Pohl (1989) have found that panic disorder patients who panic in response to challenges report fears of “going crazy” or losing control, whereas those who do not panic do not report such thoughts.

Treatment implications of the cognitive model are that any successful treatment must involve modification of interpretations of bodily sensations. Successful cognitive-behavioural treatments have modified interpretations using cognitive restructuring, education about panic and interoceptive exposure (e.g. Clark et al, 1985; Klosko & Barlow, 1987; Barlow, Craske, Cerny & Klosko, 1989; Michelson, Marchione, Greenwald, Glanz, Testa & Marchione, 1990; Klosko, Barlow, Tassinari & Cerny, 1990; Clark, Salkovskis, Hackmann, Middleton, Anastasiades & Gelder 1994; Craske et al 1997). Furthermore, improvements for subjects given cognitive-behavioural treatment have been shown to be higher than those for patients given treatments which do not involve cognitive restructuring, such as supportive therapy (e.g. Beck, Sokol, Clark, Berchick & Wright, 1992).

There are some problems with the cognitive model of panic disorder. Teasdale (1988) argues that although panic attacks can be triggered by catastrophic misinterpretation, not all attacks are necessarily due to this. Rachman, Lopatka & Levitt (1988) found that 27% of the attacks reported by their sample of panic patients were not accompanied by “fearful cognitions”. However, Clark (1988) argues that the cognitive
model can accommodate these results by allowing for unconscious as well as conscious misinterpretations.

Thus, there is strong evidence for the important role of interpretation factors in the maintenance of panic disorder. However, to show that these factors also have a role in the onset of panic disorder, it is necessary to show that manipulations of interpretations lead to changes in the level of panic. This is shown by studies cited above, in which manipulations of subjective expectations about the results of challenge agents affect their responses to the agents. In addition, Clark et al (1997) found that, at the end of a course of treatment (with cognitive therapy or imipramine), the extent to which subjects were inclined to misinterpret bodily sensations was a significant predictor of relapse regardless of the efficacy of the original treatment.

Psychological research has also suggested several mechanisms by which the interpretations of panic disorder patients become catastrophic. It has been suggested that people with panic disorder interpret bodily sensations catastrophically because prior to the development of the disorder they have a tendency to respond fearfully to anxiety symptoms. The Anxiety Sensitivity Index (ASI) was developed by Reiss, Peterson, Gursky & McNally (1986) to measure the extent to which people hold beliefs about the harmfulness of anxiety symptoms, and has been shown to explain variance in fearfulness beyond that explained by trait anxiety scales (McNally & Lorenz, 1987). ASI scores are strongly associated with panic disorder (Rapee, Ancis & Barlow, 1988). Higher ASI scores are related to more intense hyperventilation and subjective anxiety after voluntary hyperventilation (Holloway & McNally, 1987), even for subjects who have never experienced a panic attack (Donnell & McNally, 1989). A similar questionnaire measure is the Body Sensations Interpretation Questionnaire (BSIQ; Clark et al, 1997) which, unlike the ASI, has been shown to discriminate between panic disorder patients and patients with other anxiety disorders. The BSIQ directly assesses interpretations of autonomic sensations described in imaginary scenarios, rather than beliefs about the harmful consequences of the symptoms (Clark et al, 1997). BSIQ scores have been shown to fall after treatments for panic disorder (Clark et al, 1997) and have been found to significantly predict relapse (Clark et al, 1994). Thus, it appears that a tendency to respond fearfully to
anxiety symptoms may be a cognitive risk factor for the development of panic disorder.

Several studies have suggested that patients with panic disorder are more accurate at monitoring and perceiving changes in their bodies. Accuracy of heart rate perception is greater in subjects with panic disorder (Ehlers & Breuer 1992), and enhanced interoceptive acuity persists after successful treatment (Ehlers, 1989). Ehlers (1995) found that, for panic patients in remission, better heart-rate perception was a significant predictor of later relapse.

These results suggest there is a maintaining role for accuracy of body monitoring in panic disorder, since subjects would notice normal fluctuations in autonomic nervous system functioning, for example, heart rate and breathing. This may then lead to worries about the meaning of such fluctuations and negative interpretations. However, such results do not show a causal role for accuracy of body monitoring in panic disorder. It is more likely that increased accuracy of monitoring is a consequence of panic disorder, for example, Schmidt, Lerew & Trakowski (1997) found that “body vigilance” (conscious attention focused on internal bodily sensations) was greater in panic disordered subjects, but decreased after cognitive behavioural therapy. This increased attention paid to the body could result in patients becoming more accurate in judgements of their bodily functions.

Studies have shown that there are differences between patients with panic disorder and controls in the way that information is processed. There is evidence of memory bias: panic patients show a recall bias towards anxiety and danger words (Norton, Schaefer, Cox, Dorward & Wozney, 1988) and threat cues (McNally, Foa & Donnell, 1989). There is also evidence of attentional bias: subjects with panic disorder have an enhanced attentional bias towards threat information that is directly related to their principle fears (MacLeod, Mathews & Tata, 1985; Mathews & MacLeod, 1986; McNally, Reiman & Kim, 1990). Using modifications of the Stroop paradigm, it has been shown that panic patients show attentional bias for words related to physical threat (Hope, Rapee, Heimberg & Dombeck, 1990), embarrassment (Elhers, Margraf, Davies & Roth, 1988) bodily sensations, fear and catastrophe (McNally et al, 1990),
but not more general anxiety related words (e.g. coffin, indecisive) which produce Stroop interference in patients with generalized anxiety disorder (Baptisa & Figuera, 1989). This last result suggests that panic patients are not just responding to highly emotive words (McNally, 1990). Also, effects are not due to familiarity with the words: rape victims with post-traumatic stress disorder (PTSD), unlike rape victims without PTSD exhibited Stroop interference for rape-related words despite both groups being familiar with the words (Foa 1989), and attentional biases shown by patients with phobias and obsessive-compulsive disorder decrease after treatment, despite an increase in familiarity with related words (Watts, McKenna, Sharrock & Triese, 1986; Foa & McNally, 1986).

It is likely then, that information processing biases contribute to the maintenance of panic disorder, although the evidence of change in information processing following treatment cited above suggests that information processing biases are a consequence of the disorder, and so do not play a role in its onset.

In conclusion, early research aiming to discover a basic physiological difference between patients with panic disorder and controls has not been successful. The biological theories discussed require the addition of psychological factors before they can adequately account for either the onset or maintenance of panic disorder. The balance of evidence suggests that panic patients are identifiable by their tendency to interpret bodily sensations and anxiety symptoms as more harmful than they really are. These interpretations clearly maintain panic disorder, and there is emerging evidence to suggest that they are also important in the onset of the disorder.
REFERENCES


Is cognitive behaviour therapy an efficacious treatment for psychosis?
When judging the value of any treatment, efficacy can be measured in several ways. In relation to psychosis, a treatment could be considered efficacious when it results in elimination of psychotic symptoms, reduction in frequency of psychotic symptoms, reduced relapse rates, or improved quality of life despite continuing symptoms. Studies using cognitive behaviour therapy (CBT) for psychosis will be reviewed and it will be argued that this is an efficacious treatment for psychosis in all the above ways. CBT approaches are varied both in terms of the techniques used and the aim of the treatments: individual-symptom focussed CBT approaches have succeeded in eliminating symptoms for some clients, multi-faceted CBT approaches have reduced a range of symptoms and associated distress, as well as relapse rates, and CBT approaches aimed at coping with enduring symptoms have succeeded in improving overall quality of life. It will further be argued that CBT approaches that address the “whole experience” of psychosis are most useful in treatment.

Traditional approaches to psychosis have stemmed from a medical model, which viewed medication as the treatment of choice, considered that symptoms of psychosis have no meaning and aimed to eliminate them. Early psychological interventions also viewed symptoms as meaningless, for example, operant procedures were used to eliminate or modify the report or expression of symptoms such as delusions (Ayllon & Houghton, 1964; reported in Hemsley, 1994), hallucinations (Rutner & Bugle, 1969; reported in Hemsley, 1994) or disordered speech (Meichenbaum, 1969; reported in Hemsley, 1994) without attending to the content of symptoms.

Cognitive behavioural approaches depart from the tradition of viewing psychotic symptoms as meaningless and to be eliminated, and instead adopt an approach of exploring symptoms in terms of their content, meaning and associated thoughts and feelings. In this way, the CBT approach encompasses a consideration of the “whole experience” of psychosis, by considering the effects and consequences of the symptoms on the person, including associated affective disruption, social stigma, family relationships and self-concept.

A flexible approach to therapy is emphasised (e.g. Haddock & Slade, 1996; Perkins & Repper, 1996), to take account of the effects of emotional and cognitive
disorganisation and issues preventing relationship formation. For example, clients are able to engage in therapy sessions for varying lengths of time according to their ability to concentrate, and extended assessment periods are used to establish rapport (Kuipers, Garety & Fowler, 1996).

Several CBT approaches have been targeted at individual symptoms of psychosis, for example, a client's most distressing or persistent symptom would be the focus of treatment. Reality testing, whereby evidence for delusional beliefs is systematically explored and tested, and belief modification, where clients are encouraged to accept reinterpretations of their beliefs, have been used to treat delusional beliefs in several studies. Beck (1952) used reality testing to successfully reduce the strength of the beliefs of a client with paranoid schizophrenia and Watts, Powell & Austin (1973) found reality testing to be superior to in vivo desensitisation and relaxation for three clients with paranoid schizophrenia. Alford (1986) used reality testing and belief modification in a single case ABAB design (i.e. no treatment (A) alternated with treatment (B)) resulting in less need for medication during treatment phases and reduction in belief strength which was maintained at three month follow up. Chadwick and Lowe (1990) successfully used belief modification to alter deluded beliefs in five of six clients with chronic schizophrenia. Gains were maintained at six-month follow up. However, Hole, Rush & Beck (1979) used reality testing with eight deluded clients, but found mixed outcome.

Bentall, Haddock and Slade (1994) used a three-stage approach to treating auditory hallucinations based on a model suggesting that hearing voices results from a failure to attribute the voice to the self. This failure is proposed to result from the characteristics of the voice, and the client's beliefs and expectations about causal agents and the kind of events, which occur in public and private domains (Bentall, 1990; Slade & Bentall, 1988). Clients were first encouraged to focus on the physical characteristics of the voices, then to focus on the content of the voices, and then to explore the related thoughts and assumptions about the voices, to facilitate a reattribution of the voices to the self. A pilot study using this approach produced mixed results, with a reduction in duration of voices and in associated distress for only three of six clients (Bentall et al, 1994). Morrison (1994) successfully treated the
auditory hallucinations of one client using focussing and shadowing techniques, resulting in a reduction in frequency of voices, distress caused by voices and belief in reality of the voices. This was maintained at three-month follow up.

Therefore, single-symptom focussed approaches have had some success in reducing strength of belief in delusions, but less success in reducing frequency of hallucinations.

Cognitive behavioural treatments for both individuals and families have been developed which aim to reduce the occurrence of all psychotic symptoms experienced, and reduce relapse rates. One example of this is the cognitive deficit approach. Many psychological theories suggest that there is a core cognitive deficit in schizophrenia or psychosis, which, if it could be rectified, would lead to reduction in psychotic symptoms and associated problems.

Hansen, Lawrence and Christoff (1985) found that teaching laboratory problem-solving skills to seven subjects with negative symptoms resulted in some generalisability to real life, and gains were maintained at four-month follow up. Spaulding, Storms, Goodrich and Sullivan (1986) successfully combined social skills training with training in laboratory tasks involving generation of different percepts, and found that their schizophrenic subjects made less perseverative errors in social situations. However, this approach was specific only to social situations, and skills learned were not transferable to other areas (Alford & Correia, 1994).

The Integrated Psychological Treatment (IPT) programme (e.g. Brenner, 1989; Brenner, Hodel, Volker & Corrigan, 1992) aims to reduce attentional, perceptual and cognitive dysfunction by improving cognitive differentiation, social skills, social perception, verbal communication and interpersonal problem solving. This approach has had some success in reducing deficits, but limited generalisability to real life situations, and therefore little impact on affect and behaviour (e.g. Kingdon, Turkington and John, 1994). Similarly, Meichenbaum’s (1977) Self-Instructional Training approach showed initial rapid gains but limited generalisability (Bentall, 1996), and Hogg (1996) reports that although it was successful in helping clients with
negative symptoms complete tasks, clients were not able to use self-instruction in novel situations (Bentall, Higson & Lowe, 1987).

Given the wide variety in patterns of psychotic symptoms, it is unlikely that there is any one core cognitive deficit in psychosis (Bentall, 1992), thus accounting for failure to generalise in these studies.

Other CBT approaches aiming to treat the “whole experience” of psychosis have targeted stress. Allen and Bass (1992) successfully treated two clients with psychosis using interventions aimed at reducing stress, since both subjects experienced increased symptomatology under stressful conditions. However, due to the limitations in study design, the exact mechanism of change within the treatment package was unclear.

Kingdon et al, (1994) propose a flexible approach taking account of the full psychopathology of the individual, rather than the isolated use of reasoning techniques. This involves educative and normalising elements to reduce the distress and stigma attached to a diagnosis of schizophrenia, symptom-focussed techniques such as reality testing and belief modification, and CBT for anxiety and depression where this exists. Similarly, Kuipers et al (1996) emphasise the importance of an approach which not only aims for a reduction in the experience of individual symptoms and associated distress, but also addresses the importance of depression in psychosis, using techniques such as psychoeducation and coping strategies to enable clients to come to terms with their diagnosis, deal more effectively with symptoms and recognise and act on signs of relapse. Using this approach in a waiting-list controlled study, 13 patients with psychosis were treated, resulting in reduced delusional conviction, general symptomatology and depression (Garety, Kuipers, Fowler, Chamberlain & Dunn, 1994).

Successful family intervention approaches aimed at treating the total experience of psychosis have been reported. Kingdon & Turkington (1991) used normalising and psychoeducation strategies with schizophrenia sufferers and their families, combined with attempts to correct cognitive distortions. The approach was acceptable to both
families and clients and in a group of 64 clients, resulted in little need for hospitalisation or medication. Barrowclough and Tarrier (1987) treated one client, who attended with his parents, using education, stress management, goal setting and stress inoculation. This resulted in a lower relapse rate and better social functioning for the client and lower Expressed Emotion in the family. Tarrier (1992) used belief modification with one client who believed that his voices could only be controlled through aggressive verbal counter-attacks, which proved very distressing for his family. Following treatment, as well as reduced occurrence of voices and associated distress, the family atmosphere became less stressful for the client, thus protecting against relapse (Barrowclough & Tarrier, 1992). This illustrates the fact that intervention with an individual may have a knock-on effect with the whole family.

CBT packages that take account of the “whole experience” of psychosis, in terms of the full range of symptoms and associated affect, have therefore been successful in reducing relapse rates. Such packages often incorporate techniques developed to treat single symptoms as outlined above.

Depression and negative self-concept are common in people with psychosis: there is evidence that 25-40% of clients with psychosis experience affective symptoms (Hemsley, 1992, reported in Kuipers et al, 1996; Johnstone, Owens, Frith & Leavy, 1991) and suicide risk amongst this population is around 10% (Hirsch, 1982; Briera, Schreiber, Dyder & Pickard, 1991). Many authors therefore argue that reducing the distress associated with psychotic symptoms should be the main focus of therapeutic interventions, rather than reducing the frequency or severity of symptoms (e.g. Alford & Correia, 1994; Kuipers et al, 1996; Chadwick & Birchwood, 1996; Romme & Escher, 1989, 1996; Perkins & Repper, 1996).

Romme and Escher (1989) argue that, since many non-psychotic people hear voices and never seek help to eliminate these, but rather, cope easily with the experience and in many cases find it enriching, it is possible to live with voices without distress. The approach of reducing or eliminating the experience of voices is therefore not always the most appropriate focus of therapy. Romme and Escher (1996) have successfully enabled some clients to cope with their voices without distress by facilitating
explanations that accept voices as somewhat controllable and part of themselves. They also argue that onset of voices can be prompted by stressful life events or unresolved personal conflicts as part of a coping or compensatory strategy, and that the content of the voices tends to reflect these issues. In some cases, by attending to the content of their voices, clients have been able to recognise important personal issues, and voices have subsequently disappeared following resolution of these issues in therapy (Romme & Escher, 1996).

Perkins and Repper (1996) argue that the task when working with people with psychosis is to minimize the disabling effects of cognitive and emotional difficulties, rather than to aim to reduce or eliminate symptoms. Their approach focuses on exploring belief systems, in many cases without aiming to alter them, in order to minimise disruption to life and change the harmful consequences of the beliefs. An understanding and acceptance of the client’s belief system, it is argued, can aid workers in changing the environment to reduce clients’ distress, offering practical support where needed, allowing the person to act on the beliefs in a limited and “acceptable” way, and recognising early signs of problems. No controlled studies have evaluated the efficacy of such approaches, since the approach is different for each individual, but Perkins and Repper offer several case examples where such approaches have been successful in improving quality of life.

Chadwick and Birchwood (1996) have also suggested an approach aimed at helping people live with their voices, rather than aiming to eliminate them. In a study of people who experience auditory hallucinations, Chadwick and Birchwood (1996) found that most experienced their voices as omnipotent and felt they had little control over them. Beliefs about voices were strongly linked with affective and behavioural responses: those who believed their voices to be malevolent tended to resist the voices and experienced distress and anger; those who believed their voices to be benevolent tended to engage with the voices and experienced positive feelings. These responses were dependent on the judgement of the voices as malevolent or benevolent, and were independent of the content of the voices. By using reality testing and behavioural experiments to lessen the perceived omnipotence of the voices, Chadwick and Birchwood aim to re-frame the voices as self-generated and benevolent, thus reducing
associated distress and anger for clients. Like Romme and Escher (1989, 1996), Chadwick and Birchwood suggest that voices need not be eliminated for improved quality of life, and that the content of voices often has personal significance for the client, and points to issues that should be resolved in therapy.

The studies reported above have shown that CBT is an efficacious treatment in many cases of psychosis. However, the majority of the studies mentioned have used small sample sizes, with relatively short follow up periods, thus leaving many unanswered questions. Further research using larger sample sizes and long-term follow up is necessary to evaluate the efficacy of any new treatment.

Trials of CBT have almost exclusively been carried out with subjects who are also being treated with psychotropic medication. Although in many studies attempts are made ensure medication is stabilised, from the current research it is difficult to assess the efficacy of CBT for psychosis in the absence of medication. However, Morrison’s (1994) successful treatment of a client experiencing voices (reported above) was achieved without neuroleptic medication, suggesting that CBT may, in future be used as an alternative, as well as a complementary treatment, to medication for some clients. Non-drug therapies are invaluable, since they are low-risk, physically unintrusive and more acceptable to clients (Kuipers, 1996).

Few studies have examined the use of CBT in the early stages of psychosis. However, one study by Drury (1994) used a CBT approach with acute inpatients, some of whom were experiencing their first episode of psychosis. Compared to a control group, patients who received CBT spent half as long in hospital, and reached 50% symptom reduction twice as quickly. This study suggests promise for CBT in early intervention.

The studies of CBT with psychosis tend to vary greatly both in terms of specific techniques used in treatment and in terms of the types and severity of symptoms experienced by subjects. The mechanisms of change are therefore quite difficult to determine, and it is not clear exactly which aspects of CBT are efficacious, or whether some types of treatment are particularly useful for some clients (Haddock & Slade, 1996). Few CBT studies have focussed on the treatment of negative symptoms (Hogg,
1996), however, it is possible that CBT techniques developed for treating depression (such as graded task assignments and activity scheduling) could be applied in this area.

In conclusion then, it appears that although CBT for psychosis is at an early stage of development, it is an efficacious treatment, and there is much promise for its future use in early intervention, symptom management and relapse prevention. The studies reviewed above suggest that CBT is most efficacious in the treatment of psychosis when a multi-faceted approach is adopted. In this way, CBT goes beyond traditional symptom elimination to consider the "whole experience" of psychosis with its major aim as improving the quality of life of clients, whether psychotic symptoms persist or not.
REFERENCES


People with Learning Disabilities Essay

Year I

Discuss the relevance of genetic anomalies to day-to-day clinical psychology work with people who have learning disabilities.
Introduction

In the population as a whole, it is estimated that 1% of newborn babies have a chromosomal abnormality (Jacobs, 1990; Bolton & Holland, 1994). However, of the population of people with learning disabilities, up to 50% have a diagnosed genetic anomaly and 2000 genetic causes of learning disability are currently known (Barr, 1998; Emerson & Hatton, 1996; Mueller & Young, 1995). Murphy (1994) estimates that the percentage of children with severe learning disabilities (IQ < 50) who have genetic defects is even higher, at 60-70%. 36% of children with severe learning disabilities have chromosomal defects, 15-20% have a single gene deficit or the Fragile X chromosome, and 12-15% have complex genetic defects contributing to the learning disability (Roberts, 1987).

It is likely therefore, that the majority of clients with learning disabilities who present to Clinical Psychologists have a genetic anomaly, so Clinical Psychologists cannot ignore the impact of genetics. It will be argued that knowledge of genetic anomalies and their effects on behaviour is relevant to day-to-day clinical psychology work in the field of learning disabilities since it can aid service development and planning, it can give additional information about individual clients and suggest interventions specific to certain syndromes, and it can be used to educate carers and parents of clients. The definition of “behavioural phenotype” will be discussed, and it will be argued that Clinical Psychologists must take into account the variability in phenotypic expression, and both the direct and indirect effects of genes on behaviour. Finally, the role of the Clinical Psychologist in genetic counselling will be considered.

Genetics and behaviour

Historically, it was assumed that genetic disorders have no specific effects on the behaviour of people with learning disabilities (e.g. Ellis, 1969; MacMillan, 1982). However, a great deal of present research focuses on identifying genotypes (variation in the pattern of genetic material) and their resulting phenotype (observable characteristics), and in particular the search for “behavioural phenotypes” (Nyhan, 1972).
Interest in behavioural phenotypes has increased due to improvements in the ability to define genes responsible for certain problems (e.g. Pieretti, Zhang, Fu, Warren, Oostra, Caskey & Nelson, 1991), developmental research highlighting different developmental pathways for certain syndromes (Zigler & Hodapp, 1991) and the work of parents’ self-help groups which noted similarities between the behaviour of children with the same syndrome.

There are many potential benefits of studying behavioural phenotypes. Clements (1987) argues that it is important to be aware of the biological dimension of learning disabilities because of the implications for diagnosis and therapy: exploration of biopsychosocial relationships can help to refine psychological interventions, and may help client welfare. A client’s genetic diagnosis can inform the clinician of likely developmental progress over time (Zigler & Hodapp, 1991) and therefore aid planning for the person’s future. For example, it is now well known that people with Down syndrome are at increased risk of developing senile dementia of the Alzheimer’s type (SDAT) (e.g. Oliver & Holland, 1986; Prosser, 1989), and services can therefore plan ahead to ensure there is proper care for these clients in their later years.

Berney (1998) suggests that a “label” can inform teaching and therapeutic strategies, and highlight the presence of other more subtle deficits or difficulties, which once identified can be targeted as part of the intervention strategy, and Flint & Yule (1994) argue that research into behavioural phenotypes might also enhance knowledge about genes responsible for behaviour in the non-learning disabled population.

Where Clinical Psychologists inform parents and carers about behavioural phenotypes, this can be of great benefit: Morritt, Waterston & Magnay (1996) found that parents appreciated having a genetic cause identified for their child’s learning disability as it offered an explanation for the child’s behaviour, and Moore (1982) found that parents of children with Down syndrome benefited from group support and educational meetings. Barr (1998) notes that information about a child’s genetic condition can provide parents with an explanation, a prognosis, and help to absolve them of blame for the child’s behaviour (Chapple & May, 1996). For example,
parents may be told that it is a characteristic of Cornelia de Lange syndrome that the child rejects physical contact and shows a paucity of social responses (Johnson, Ekman & Friesen, 1976) and not a failure of parenting (Flint & Yule, 1994).

A behavioural phenotype has been defined by Flint & Yule (1994) as occurring where there is a distinctive behaviour which occurs in almost every case of a genetic disorder, and rarely, if at all, in other conditions. Furthermore, the behaviour must have a direct and specific relationship to the genetic anomaly that gives rise to the physical manifestations of the syndrome. However only three behavioural phenotypes can be identified under this narrow definition: the severe self-mutilation seen in Lesch-Nyhan syndrome (Christie, Bay, Kaufman, Bakay, Borden & Nyhan, 1982), the hyperphagia and foraging for food seen in Prader-Willi syndrome (Zellweger & Schneider, 1968; Holm & Pipes, 1976; Taylor & Caldwell, 1985), and the midline hand-wrinking stereotypies seen in Retts syndrome (Iwata, Pace, Willis, Gamache & Hyman, 1986). This narrow definition of a behavioural phenotype is therefore of little use in clinical practice, and it may be useful to instead consider a broader definition, which encompasses characteristic behaviour often associated with a syndrome.

The study of behavioural phenotypes can sometimes lead to identification of specific intervention strategies for certain syndromes (e.g. Murphy, 1998) which are of utmost relevance to clinical psychology work with people with learning disabilities. For example, children with Down syndrome, but not those with Fragile X or Prader-Willi syndrome show heightened visual over auditory processing skills (Pueschel, Gallagher, Zartler & Pezzullo, 1987), suggesting that early intervention with sign language training would be useful for children with Down syndrome, but not for children in the other two groups (Pueschel & Hopmann, 1993). Children with Fragile X or Prader-Willi syndrome may benefit from more “gestalt”-like interventions, since both groups have problems with sequential processing (Scharfenaker, Hickman & Braden, 1991).

Properly targeted early intervention strategies can lead to the prevention of secondary handicaps (Marfo, 1991), and some genetic conditions can be directly treated. Phenylketonuria, which is caused by high levels of phenylalanine, can cause severe
learning disability in 50% of cases (Wright & Tarjan, 1957). However, this disorder can be easily treated by restricting dietary intake of phenylalanine, resulting in normal range intelligence (Fishier, Azen, Friedman & Koch, 1989). Congenital hypothyroidism can cause severe learning disability if untreated or treated late (Raiti & Newns, 1971), but if treated with thyroxine replacement (Grant, 1987) children achieve normal intelligence range and show no behavioural disturbance (Murphy, Hulse, Jackson, Tyrer, Glossop, Smith & Grant, 1986). Concurrent hyperactivity in people with Fragile X syndrome has been successfully treated with folic acid (Giannapoulu, Turk & Gath, 1991), and some cases of Prader-Willi syndrome have been successfully treated with appetite suppressants (Selikowitz, Sunman, Prendergast & Wright, 1990). Smith-Lemli-Opitz syndrome (Smith, Lemli & Opitz, 1964) may be treated with a high cholesterol diet (Nwokoro et al. 1994). Although these are medical and not psychological interventions, without knowledge of genetic anomalies, Clinical Psychologists may miss possible treatments, and so fail to act in the best interest of the client.

As previously mentioned, a narrow definition of a behavioural phenotype does not provide the most useful clinical information. There is great variation in the expression of behavioural phenotypes, such that it may be more useful to define a behavioural phenotype as a heightened probability that an individual with a certain genotype will engage in a particular behaviour (Dykens, 1995). Hodapp (1997) points out that behavioural phenotypes are not static: behavioural, pharmacological, psychotherapeutic and educational interventions may modify the expression of a behaviour. Behaviour may also change during development, as in the case of Prader-Willi syndrome: as infants, affected children show feeding problems and failure to thrive, but in later years, hyperphagia and severe obesity develop (Dykens & Cassidy, 1996).

There can be variability within a syndrome, (such as in Fragile X, where genotypes differ even within the same family; Rousseau, Heitz, Biancalana, Blumenfeld et al, 1991); reduced or incomplete penetrance, so that an individual carrying the gene does not show the phenotype, and variable expression, so individuals with the same
genotype show different phenotypic expression (Simonoff, McGuffin & Gottesman, 1994).

These variations result in a spectrum of disorder (Berney, 1998), which makes looking for behavioural phenotypes very difficult, and ever more reliant on accurate identification of genetic differences between individuals. For example, clinical differences have been noted between two subgroups of Angelman’s syndrome, which is due to an abnormality of the long arm of chromosome 15 inherited from the mother (Clayton-Smith, 1993). The subgroup who have a deletion of that section of the chromosome have a wider range of behavioural abnormalities than the subgroup who have had that section “turned off” by an imprinting centre (Burger, Kunze, Sperling & Reis, 1996). Clinical Psychologists must therefore consider the variability in phenotypic expression if they are to use knowledge of genetic anomalies to guide interventions.

Further complicating the link between genotype and behavioural phenotype is the fact that genes can also influence behaviour indirectly. Any genetic disorder affects only a tiny percentage of the individual’s genes (Hodapp, 1997) and it is important not to ignore the environmental effects that operate in conjunction with the genetic effects. Expression of genetically determined behaviour will be influenced by parents’ reactions to that behaviour, and this in turn may be affected by genetics, if for example, the parent’s personality is affected by being a carrier of a disorder (e.g. in autism, where autistic traits are being recognised in near relatives; Piven, Palmer, Jacobi, Childress et al, 1997).

Often, what are taken as direct effects of the genetic anomaly could also be explained in terms of indirect effects. For example, Hodapp (1997) argues that studies showing that families of children with Down syndrome cope better than families of children with other learning disabilities (Seltzer, Krauss & Tsunematsu, 1993; Thomas & Olsen, 1993; Kasari & Sigman, 1997) can be explained as a function of an evocative “child-environment transaction” (Scan, 1993). Pitcairn & Wishart (1994) found that in an “impossible task”, compared to mental- and chronological-age matched controls, children with Down syndrome exhibited more “charming” behaviour, designed to
distract the experimenter from the task at hand, such as smiling and gaining eye-
contact. Children with Down syndrome might therefore be more rewarding to parents
and carers than other children with learning disabilities who do not show such
charming behaviour (e.g. Fragile X syndrome children tend to avoid eye contact;
Cohen, Fisch, Sudhalter, Wolf-Schein, Hanson, Hagerman, Jenkins & Brown, 1988).
Children with Down syndrome may also be rewarding to parents because they show
less maladaptive behaviour than children with other syndromes (Gath & Gumley,
1986), and are less likely to have autistic features (Fombonne & Mazabrun, 1992).

In other syndromes also, behaviours that are thought to be the direct result of genetic
anomalies may be due to indirect effects. Children with Williams syndrome are said
to be highly sociable and have an “approaching” temperamental trait, but this may be
an indirect effect of their facial appearance and smiling behaviour, which encourages
parents and carers to interact and thus positively reinforces sociability (Dilts, Moths &
Leonard, 1990). In Prader-Willi syndrome, the extreme over-eating and foraging for
food may in part be learned as a result of living in environments where access to food
is severely restricted (Taylor, 1988; Flint & Yule, 1994), and in Fragile X syndrome,
the “cluttering”, jocular style of speech noted by many investigators (e.g. Jacobs,
Glover & Myer, 1980; Jacobs, Mayer, Matsuura, Rhodes & Yee, 1983; Hanson,
Jackson & Hagerman, 1986) may be an indirect effect of social anxiety (Sudhalter,
Cohen, Silverman & Wolf-Schein, 1990). In Cornelia de Lange syndrome,
characteristic self-injurious behaviour and aggression (e.g. Johnson et al, 1976) are
often diminished when the underlying painful physical disorders are treated (Berney,
1998), suggesting that the observed behaviours are indirect effects of the genotype.
Indirect effects of genes on behaviour are perhaps the most amenable to psychological
interventions, for example, helping clients with Fragile X syndrome reduce their
social anxiety, or educating parents and carers about the effects of their reactions on a
client’s behaviour. Thus, over-reliance on a model that attributes behaviour to
genotypes may cause Clinical Psychologists to view behaviour as an unchangeable
part of a particular syndrome, and therefore leave untreated behaviours that could in
fact be successfully modified.
There are other ways in which genetic information is unhelpful or irrelevant to day-to-day clinical practice. Knowing a behaviour is associated with a certain gene does not suggest useful ways of treating behavioural disturbance unless something is known about the mechanism by which the gene affects that behaviour (Hodapp, 1997). For example, the structure of the gene and the function of the abnormal enzyme in Lesch-Nyhan syndrome are well known, but this information does not show how such defects cause the specific behavioural phenotype of extreme self-mutilation (Stout & Caskey, 1988; Oliver & Head, 1990; Winchel & Stanley, 1991). Self-mutilation in Lesch-Nyhan syndrome is extremely resistant to treatment (e.g. Anderson, Dancis, Alpert & Herrmann, 1977), and knowledge of the behavioural phenotype does not seem to have aided intervention strategies in this case. Sometimes, knowledge of behaviours identified as occurring as part of a behavioural phenotype are not useful in day-to-day clinical psychology work with people with learning disabilities. Smith-Lemli-Opitz syndrome is characterised in infancy by "irritable behaviour with shrill screaming" (Jones, 1988) - information which would be of very little practical use to a Clinical Psychologist seeing a client with this syndrome.

Furthermore, Morritt et al (1996) argue that many people with learning disabilities have no genetic diagnosis, or recent investigation of their chromosomes, so valuable information about the nature of their disorder is lost. For example, Jacobs, Bullman, Macpherson, Youings, Rooney, Watson & Dennis (1993) found that of a sample of 873 children with special educational needs, there were 310 with no diagnosis for their learning disability. It is likely then, that where there are few observable signs of a syndrome, Clinical Psychologists are often unable in practice to consider the effects of genetic anomalies, due to the lack of a genetic diagnosis.

**Genetic counselling**

Genetic anomalies are extremely relevant where Clinical Psychologists are involved in counselling couples who are carriers of a genetic disorder and wish to have children, or whose unborn child has already been diagnosed as having a genetic disorder. Genetic counselling can be of immense value to parents (Murphy, 1994). It can provide an estimate of the risk of a child having a particular disorder, and
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information about the likely behaviour and level of disability of that child, so as to aid decisions about whether or not to go ahead with a pregnancy (Clarke, Parsons & Williams, 1996). It can also help parents to prepare for the birth of a child with learning disabilities, and to adopt realistic expectations for their child (Steele, 1993). However, many parents have reported that the information they received at the time of prenatal genetic screening is often overly negative, and based on the assumption that the child will be aborted if a genetic condition is identified (Hill & Hill, 1994; Leonard, 1994; Parents’ letters, British Journal of Learning Disabilities, 1998). One survey found that 75% of consultant obstetricians in Britain required a woman to agree to abort a foetus with Down syndrome before they would give amniocentesis (Stanworth, 1989). Clinical Psychologists can play a role in genetic counselling which is independent from the medical model, and so may be able to offer parents accurate and balanced information about various genetic anomalies based on their experience of people with learning disabilities.

An increasing number of genetic conditions can now be detected prenatally (Weaver, 1989), and advancing medical knowledge has the potential to significantly reduce the prevalence of learning disabilities (Williams, 1995; Barr, 1998). Kuhse & Singer (1983) argue for the active prevention of Down syndrome through prenatal screening and abortion, and through postnatal withholding of medical treatment. However, Williams (1992) notes that prenatal screening for conditions such as Down syndrome may contradict the principles of Normalisation, and contribute to the devaluing of disabled people throughout society. There may also be negative psychological effects on people with Down syndrome of knowing that prevention of their syndrome takes place (Parents’ letters, British Journal of Learning Disabilities, 1998). Since Clinical Psychologists are involved in promoting the dignity and quality of life of their clients with learning disabilities, it is vital that they see genetic anomalies as relevant to their day-to-day work, and become involved in the ethical debate surrounding such issues.
Conclusion

Research into behavioural genetics is constantly advancing, and much is now known about a variety of syndromes that cause learning disabilities. It has been shown that, whilst Clinical Psychologists may not always have access to information about their clients’ genetic disorders, such information can be of immense value in formulating and intervening with clients with learning disabilities, and ought not to be discarded or treated as irrelevant. It has also been argued that Clinical Psychologists have a responsibility to become involved in society’s ethical debates around genetics in order to protect the interests of their clients. Genetic research is quickly becoming more important in many areas of human life, and so will be of increasing relevance to day-to-day clinical psychology work.
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Clinical depression is an adult phenomenon and is not relevant to children or adolescents. Discuss.
Introduction
It is important to recognise that the term “depression” can be used to refer to a symptom of affect or mood, a syndrome, or a disorder (Rutter, 1988a). Historically, only the symptom of depression, experienced for a short time, was recognised as a valid childhood experience. Focussing on unipolar depression without psychosis, it will be argued that the status of the term “depression” has evolved over the last 50 years from symptom, to syndrome, to disorder, so that clinical depression is now recognised as greatly relevant in childhood and adolescence. Children and adolescents can and do experience symptoms of depression, and it has been demonstrated that these symptoms cluster together to form a syndrome. Issues of co-morbidity and overlap with other disorders will be addressed, and it will be shown that there are important differences between disorders which illustrate that depressive symptoms are not just secondary to other disorders, but themselves form a distinct psychiatric disorder. Clinical depression is a relevant disorder which can be diagnosed and measured, and which can guide treatment of children and adolescents. Continuities between adults and children will be shown, in terms of models and treatment programmes used.

Previous views of depression in childhood
Descriptions of affective disturbance in children have been present in the literature since the 19th century (e.g. Griesinger, 1845, cited in Nissen 1988). Levy (1937) and Engel & Reichsman (1956) both described single case studies of girls who showed affective withdrawal, lack of emotional responsiveness and incapacity to form attachments and Spitz (1946) described a transient condition named “anaclitic depression” in babies between 6 and 12 months of age. This was characterised by dejected expression and posture, and distaste for mobility. The condition was thought to be an infantile prototype of later depressive psychosis (Abraham, 1924), and due to deprivation of maternal care. However, these early descriptions of states resembling adult depression were thought to be only transitory responses to extreme emotional stress from which the child recovered quickly if reunited with the caregiver. Traditionally, psychodynamic theory has not recognised the possibility of the occurrence in children of affective disorders akin to adult clinical depression. Many theorists argued that depression cannot emerge as a disorder until adolescence when
the "superego" develops (Finch, 1960; Mahler, 1961; Rie, 1966a, 1966b; Kessler, 1966). For example, Mahler (1961, pg. 342) states:

"It has been conclusively established that the immature personality structure of the infant or older child is not capable of producing a state of depression such as that seen in the adult (Zetzel, 1953, 1960)...The child's grief is remarkably short lived because his ego cannot sustain itself without taking prompt defensive actions against object loss...Children recover from transient reactions of mourning."

The concept of "masked depression" was put forward by Glaser (1967), who argued that depression exists in children, but is often misdiagnosed, since in children it results in different symptoms to those displayed by adults with clinical depression. It was thought that depression could be masked by hyperactivity (Ossofsky, 1974), aggression, psychosomatic disturbance, hypochondriasis, sleep disturbance, non-attendance at school, general anxiety (Murray, 1970), delinquency (Cytryn & McKnew, 1972, 1974), temper tantrums (Malmquist, 1977), disobedience, truancy, boredom, restlessness (Toolan, 1962), enuresis, learning problems (Hetherington & Parke, 1993), under achievement at school and phobias (Glaser 1967). Depression in children was seen as different from depression in adults, leading to the development of diagnoses with child-specific criteria (e.g. Weinberg, Rutman, Sullivan, Pencik & Dietz, 1973; Ling, Oftedal & Weinberg, 1970), or the inclusion of child-specific symptoms alongside "core" symptoms (Feighner, Robins, Guze, Woodruff, Winokur & Munoz, 1972). Early diagnostic criteria tended to be very broad, leading to high rates of diagnosis, for example, 63% of Weinberg et al's (1973) sample were diagnosed as depressed. Children who met the criteria for depression were also likely to meet the criteria for another diagnostic category (Carlson & Cantwell, 1980; Cytryn, McKnew, Bartko, Lamour & Hamovitt, 1982). Lefkowitz and Burton (1978) argue that the concept of "masked" depression leads to very high rates of diagnosis, since nearly all children showing any difficult behaviour could be included in the diagnosis, and it is clear that early diagnostic criteria that allow for the concept of "masked" depression do not reflect a distinct clinical syndrome.
Depression recognised as a valid symptom

By the early 1970s, there was a move away from seeing depression in children as “masked” by other symptoms (Zeitlin, 1986). It was recognised that children and adolescents could experience symptoms of depression that are similar to those experienced by adults (Kashani, Husain, Shekim, Hodges, Cytryn & McKnew, 1981). Depressive symptoms can occur in non-clinical populations: rates vary from 7.3% for moderate levels (Kaplan, Hong & Weinhold, 1984), and 1.3% (Kaplan et al, 1984) to 5.2% (Lefkowitz & Tesiny, 1985) for severe levels. Many epidemiological studies have shown that individual symptoms of depression are very common (MacFarlane, Allen & Honzik, 1954; Lapouse, 1966; Werry & Quay, 1971; Sheperd, Oppenheim & Mitchell, 1971; Chess & Thomas, 1972), including symptoms of misery and sadness (Rutter, Tizard & Whitmore, 1970), leading some authors to argue that depression is not a clinical entity in childhood, but merely reflects symptoms which are a common part of normal development (Lefkowitz & Burton, 1978).

Depressive symptoms may historically have been overlooked in children because of an unwillingness to accept that children and adolescents can experience powerful negative feelings, perhaps because adults tend to idealise childhood (Combrink-Graham, 1988). It has been shown that parents are insufficiently aware of adolescents’ inner experiences, thoughts and emotions (Rutter, Cox & Chadwick et al, 1976). Parents tend to underestimate their child’s reports of feelings of low self-esteem (Piers, 1972) and their child’s experience of distress and depressive symptoms (Angold, Weissman, John, Merikangas, Prusoff, Wickramaratne, Gammon & Warner 1987; Morretti, Fine, Haley et al, 1985; Reich, Herjanic, Welner et al, 1981; Orvaschel, Weissman, Padian et al, 1981; Weissman, Orvaschel & Padian, 1980; Barrett, Berney, Bhati, Famuyiwa, Fundudis, Kolvin & Tyrer, 1991). Parents may also be unaware of their child’s suicidal thoughts (Velez & Cohen, 1988) or suicide attempts (Walker, Moreau & Weissman, 1990). Children and adolescents are more accurate reporters of their subjective depressive symptoms than their parents (Edelbrock, Costello, Dulcan, Conover & Kalas, 1986). Barrett et al (1991) found that there was more agreement about symptoms between parents and prepubertal children, than between parents and adolescents, suggesting that adolescents are less able to communicate with their parents, or that parents do not appreciate the depth of
adolescent feelings, or both (Rutter, 1988b; Rutter et al, 1976; Rutter & Graham, 1968). Some research however, has suggested that the different symptom reporting of children and parents is less significant in clinic-referred populations (Harrington, 1993), probably because parents initiate most referrals (Harrington, Rutter & Fombone, 1996). Adults’ tendency to minimize or overlook their own children’s distress parallels the historical psychodynamic view of children as unable to experience depression.

Kolvin and colleagues (Kolvin, Barrett, Bhaté, Berney, Famuyiwa, Fundudis & Tyrer, 1991) argue that depression is under-diagnosed, due to inadequate methods of assessment, not because depressive symptoms manifest in a different way in children and adolescents. Many self-report measures of depressive symptoms have low discriminant validity (Kazdin, 1990; Harrington, 1994), for example, the Child Depression Inventory (CDI; Kovacs & Beck, 1977; Kovacs, 1981) separates “disturbed” and “non-disturbed” children, rather than depressed and non-depressed (Saylor, Finch, Spirito & Bennett, 1984; Carey, Faulstich, Gresham, Ruggiero & Enyart, 1987) and has been shown to correlate with measures of generalized anxiety (Fundudis et al, 1991).

**Depression recognised as a syndrome and as a disorder**

More sophisticated techniques of symptom analysis lead to the development of specific criteria for depressive disorder in childhood and adolescence. In a retrospective study of symptoms in a clinical population of children, Pearce (1974, cited in Harrington et al, 1996; Pearce, 1978) found that depression-related symptomatology tended to cluster together, and that an operationally defined depression cluster occurred in 12% of children. Using similar methodology, Zeitlin (1986) studied individuals who attended the Maudsley Hospital in both childhood and adulthood. 84% of patients showing an operationally defined depressive syndrome in childhood showed the same syndrome in adult life, compared with 44% of those without the syndrome in childhood. At both age levels, the symptom of depression was associated with a wide range of other psychopathology. Zeitlin found no evidence for the existence of masked depression in childhood.
Prevalence
Development of specific diagnostic criteria such as DSM-III (American Psychiatric Association, 1987) enables the estimation of rates of prevalence. Non-clinical population studies have shown that 2% of 7-12 year olds meet the criteria for depressive disorder according to DSM-III (Kashani & Simmonds, 1979; Kashani, McGee, Clarkson, Anderson, Walton, Williams, Silva, Robins, Cytryn & McKnew, 1983).

In clinical populations, figures are unsurprisingly much higher, at 10%-20% (Puig-Antich & Gittleman, 1982) or 27%-52% (Rosenbaum-Asarnow, Carlson & Guthrie, 1987). Carlson & Cantwell (1980) found that 60% of children referred to mental health services had depressive symptoms, 49% had a depressive syndrome, and 28% had affective disorder. Kolvin et al (1991) found that 1 in 3 outpatients had significant depression, and 1 in 4 had major depression.

Age differences
Many authors have shown that there is a rise in rates of depression with age (Rutter et al, 1970; Rutter, Graham, Chadwick & Yule, 1976; Fleming, Offord & Boyle, 1989; Velez, Johnson & Cohen, 1989; McGee, Feehan, Williams & Anderson, 1992; Hetherington & Parke, 1993) and also through adolescence there is a rise in rates of suicide (McClure 1984, 1988) and para-suicide (Sellar, Hawton & Goldacre, 1990). In non-clinical samples, studies quoted by Harrington (1994) have shown that depressive disorder can be diagnosed in 0.5%-2.5% of preadolescents (Kashani et al, 1983; Anderson, Williams, McGee & Silva, 1987; Fleming et al, 1989; Velez et al, 1989) and 2%-8% of adolescents (Fleming et al, 1989; Velez et al, 1989; McGee, Feehan, Williams, Partridge, Silva & Kelly, 1990; Cooper & Goodyer, 1993).

Kashani and colleagues found that in children referred for treatment, 1% of 1 to 6 year-olds and 13% of 9 to 12 year-olds met DSM-III criteria for depressive disorder (Kashani, Cantwell, Shekim & Reid, 1982; Kashani, Ray & Carlson, 1984). In a study of hospitalized psychiatric patients, depressive symptoms were found to be present in 11% of prepubertal cases and 25% of postpubertal cases (Rutter, 1986).
Sex differences
In clinical and non-clinical samples of 6 to 12 year-olds, studies have found that there are no differences between the sexes in prevalence rates of depressive disorder, (Kashani et al 1983; Lefkowitz & Tesiny, 1985; Lobovits & Handal, 1985; Fleming et al, 1989; Velez et al, 1989) or the rate is higher in males (Anderson et al, 1987). Females have higher rates of depression than males in both adolescence (Mezzich & Mezzich, 1979; Reynolds, 1885; Kashani, Beck, Hoeper, Fallahi, Corcoran, McAllister, Rosenberg & Reid, 1987; McGee et al 1990) and adulthood (e.g. Weissman & Klerman, 1977). This pattern also holds for symptoms of depression: after puberty depressive symptoms are at least twice as common in females in both hospitalized samples (Rutter, 1986) and in the general population (Rutter et al, 1970).

Co-morbidity and overlap with other disorders
Of children and adolescents who meet the criteria for a psychiatric diagnosis, about 50% also meet the criteria for at least one other diagnosis (Anderson et al, 1987; Bird, Canino, Rubio-Stipec, Gould, Ribera, Sesman, Woodbury, Huertas-Goldman, Pagan, Sanchez-Lacay & Moscoso, 1988). In a review of studies, Deming (1989) stated that over 50% of children with depressive disorder have a coexisting psychopathology: 25% have an anxiety disorder, 25% have conduct disorder, 30% have Attention Deficit Hyperactivity Disorder (ADHD), and 15% have a learning disability. Adolescents with depressive disorder are more likely than adults to have an additional psychiatric condition (Rohde, Lewinsohn & Seely, 1991). The most substantial co-occurrences are with anxiety disorders and conduct disorders.

Many studies have found that diagnoses of depression and anxiety co-occur in children (Bernstein & Garfinkle, 1986; Strauss, Last, Hersen & Kazdin, 1988; Kovacs & Gatsonis, 1989). Up to 45% of children with depressive disorder have been found to have a co-morbid anxiety disorder (Mitchell, McCauley, Burke & Moss, 1988), and even when there is a diagnosis of only depression or only anxiety, children often have some of the symptoms of the other disorder (Hershberg, Carlson, Cantwell & Strober, 1982).
Kendall & Brady (1995) point out that there is a great deal of overlap between anxiety disorders and affective disorders in childhood, and there are strong positive correlations between self-report measures of anxiety and depression in both non-clinical (Eason, Finch, Brasted & Saylor, 1985; Ollendick & Yule, 1990) and clinical samples (Norvell, Brophy & Finch, 1985; Wolfe, Finch, Saylor, Blount, Pallmeyer & Carek, 1987). Childhood fears, social withdrawal and depression often occur in the same child (Quay, 1979), and some suggest that for children, broad band diagnoses, such as “overcontrolled” and “undercontrolled” are more reliable and valid than distinguishing between individual disorders (Hetherington & Parke, 1993).

Both the Isle of Wight (Rutter et al, 1970) and the Virginia Twin Study of Adolescent Behavioural Development (Eaves, Silberg, Meyer, Maes, Simonoff, Pickles, Rutter et al, 1996; Hewitt, Silberg, Rutter, Simonoff, Meyer, Maes, Pickles et al, 1996; Simonoff, Pickles, Meyer, Silberg, Maes, Loeber, Rutter, Hewitt & Eaves, 1996) showed that depressive symptomatology is strongly associated with conduct and oppositional disorders, as well as anxiety and depressive disorders. Up to one third of boys fitting DSM-III diagnostic criteria for major depression also met the criteria for conduct disorder (Puig-Antich & Gittleman, 1982).

**Heterogeneity of depressive disorders in childhood**

Harrington (1994) suggests that depressive conduct disorder may be a distinct subset of depression, since it differs from depressive disorder in several important ways. Compared to depressive disorder, depressive conduct disorder is associated with:
- lower rates of depression in adulthood (Harrington, Fudge, Rutter, Pickles & Hill, 1991),
- lower rates of depression in family members (Puig-Antich, Goetz, Davies, Kaplan, Davies, Ostrow, Asnis, Twomey, Iyengar & Ryan, 1989),
- increased likelihood of substance misuse (Caron, Wickramaratne, Warner, Weissman & Merette, submitted, quoted in Harrington, 1994),
- increased likelihood of criminality in adulthood (Harrington et al, 1991),
- greater variability of mood (Costello, Benjamin, Angold & Silver, 1991) and no rise in incidence with age (Angold & Rutter, 1992).

The co-occurrence of anxiety and depression however, does not differ from “pure” depression in prognosis (Kovacs, Gatsonis, Paulauskas & Richards, 1989) or in familial aggregation (Puig-Antich et al, 1989; Mufson, Weissman & Warner, 1992).
Harrington (1994) argues that although anxiety signals a more severe disorder (Bernstein, 1991) and tends to precede depression (Brady & Kendall, 1992) it is unlikely that it indicates a qualitatively different disorder.

**Similarities between depression in adulthood, adolescence and childhood**
Depressive disorders in childhood and adolescence are clearly heterogeneous. This does not suggest that the concept is irrelevant, however, since depressive disorders in adulthood are also heterogeneous, yet diagnoses can guide treatment leading to the alleviation of distress. Depressive disorders in childhood and adolescence have similarities with depressive disorders in adulthood that make them equally useful in guiding intervention, and therefore equally relevant phenomena.

Many cognitive models that have been proposed to explain adult depression have been shown to be relevant to children. The negative cognitive triad (e.g. Beck, Rush, Shaw & Emery, 1979) characteristic of adult depression has been shown to occur in depressed children (Kazdin, French, Unis & Esveldt-Dawson, 1983). The attributional style characteristic of adults with depression (Abramson, Seligman, & Teasdale, 1978) also occurs in depressed children (Hayley, Fine, Marriage, Moretti & Freeman, 1985; Seligman & Peterson, 1986). As in adults, when depressed, children show deficits in social skills (Kazdin, Esveldt-Dawson, Sherik & Colbus, 1985). Whilst research into cognitive processes in childhood depression is far behind that in adult depression, it is likely that cognitive models will prove equally relevant to children and adolescents. Support for this position comes from a recent review of psychological treatments of depression in children and adolescents (Harrington, Whittaker & Shoebridge, 1998) which found that Cognitive Behaviour Therapy (CBT) was more effective than no treatment in four of six studies with non-clinical subjects, and four of six studies with moderately depressed subjects (Harrington et al, 1998). As with adult patients, CBT is less successful for severely depressed children and adolescents (e.g. Brent, Kolko, Birmaher et al, 1998; Clarke, Hops, Lewinsohn et al, 1998). To date, CBT is the only psychological treatment to have been used with children in randomised controlled trials, but Harrington et al (1998) suggest that family therapy and interpersonal therapy are also promising therapies for use with children and adolescents.
Evidence from biological markers shows continuity of depression between adults and children (Puig-Antich, 1986) and there is also evidence to suggest that genetic transmission plays a role in the aetiology of depression in childhood (Harrington, Fudge, Rutter, Bredenkamp, Groothues & Pridham, 1993; Harrington et al, 1996), just as it does in depression in adulthood (e.g. McGuffin, 1991). Tricyclic antidepressant drugs have been used successfully with depressed children (Puig-Antich & Weston, 1983; Weller & Weller, 1986), but have been shown to have limited use in adolescents (Ryan, Puig-Antich, Cooper, Rabinovich, Ambrosini, Davies, King, Torner & Fried, 1986).

Like clinical depression in adulthood, depression in childhood and adolescence can be a chronic or recurring condition (Kazdin, 1990). Depressed 7 to 17 year-olds have some symptoms in common with depressed adults, including mood, anhedonia, fatigue, concentration problems and suicidal ideation (Mitchell, McCauley, Burke & Moss, 1988). Adults have more early waking, loss of appetite, weight loss and early morning low mood, whilst children and adolescents have more feelings of guilt and higher rates of suicide and para-suicide (Mitchell et al, 1988). Differences in sophistication of thought processes might in part account for the differences in symptoms of depression at various ages (Weiss, Weisz, Politano, Carey, Nelson & Finch, 1992). For example, Kovacs and Paulauskis (1984) argue that hopelessness and concerns about the future may not be present in younger children, since they tend to be present-orientated. There are age differences in depressed children and adolescents’ experience of guilt and other cognitive features characteristic of depression (Rutter, 1986), which could be accounted for by theories of cognitive development which state that abstract thought is not developed until adolescence (Piaget, 1970). Most symptoms are not significantly different between adults and children or adolescents (Ryan, Puig-Antich, Ambrosini, Rabinovich, Robinson, Nelson, Iyangar & Twomey, 1987).

Conclusion
It is not possible to ignore the weight of epidemiological evidence showing that children and adolescents can experience symptoms of depressive disorder, in contradiction to earlier psychodynamic views. Over time, evidence has accumulated
suggesting that these symptoms are in fact part of a distinct depressive disorder, so that there now appear to be more similarities than differences between depression in adulthood and in childhood and adolescence. Rather than treating depression in childhood and adolescence as separate from depression in adulthood, it may be more realistic to view them all as part of one heterogeneous group of depressive disorders.
REFERENCES


Older Adults Essay

Year III

What psychological models would be useful for understanding stress amongst those caring for a relative suffering with dementia? How might these models influence approaches to supporting carers?
Older Adults Essay

Introduction
The term dementia refers to non-reversible organic conditions that involve deterioration of intellectual, social and physical functioning over a period of time (Reber, 1985). In 1993, there were an estimated 600,000 dementia sufferers in Great Britain (Morris, 1993), and more than four million with Alzheimer’s Disease in the USA (Advisory Panel on Alzheimer’s Disease, 1993). These figures will rise as the proportion of older adults in the population continues to increase (Evans, Scherr, Cook, Albert, Funkenstein, Smith, Hebert, Wetal, Branch, Chown, Hennekens & Taylor, 1990). The majority of people with dementia are cared for at home by a relative (Brody, 1985; Gallant & Connell, 1998), many of whom give up work to provide full time care (Souetre, Thwaites & Yeardley, 1999), saving the UK taxpayer on average £20,688 per person per year (Holmes, Pugner, Phillips, Dempsey & Clayton, 1998),

The potential sources of stress for someone caring for a relative with dementia are numerous (McCubbin & Patterson, 1982), and caregivers are often referred to as the “hidden victims” of dementia (Zarit, Ory & Zarit, 1985). It is important therefore to design interventions to reduce caregiver stress and distress, and psychological models of stress may provide useful guidance in planning such interventions. The nature of caregiver stress will be explored, and some general psychological approaches to the study of stress will be reviewed. A variety of different models have been suggested to account for caregiver stress, such as models linking caregiver stress with care-receiver symptoms (Townsend, Noelker, Deimling & Bass, 1989), stress-process models (Pearlin, Mullan, Semple & Skaff, 1990), the “Emotion Work” model (Mac Rae, 1998) and the “Crises of Decline” model (Braithwaite, 1996). These models will be reviewed for their adequacy in accounting for caregiver stress, and their implications for intervention will be discussed.

The Nature of Caregiving Stress
Sources of stress (stressors) involved in caring for a relative with dementia vary both with time and between individual care-receivers. There are physical demands on the caregiver, such as constant tiredness (Oktay & Volland, 1990) and the provision of...
practical assistance as their relative becomes less able (Huckle, 1994). Emotional demands on the caregiver include having to provide emotional support to their relative (Huckle, 1994), having to contend with an unpredictable pattern of symptoms and decline, anticipated grief at the care-receiver’s eventual death (Schulz, Newsom, Fleissner, Decamp & Nieboer, 1997), and having to cope without the emotional support which used to be provided by the care-receiver (MacRae, 1998). There are demands associated with the caregiver’s changed role in relation to the care-receiver, for example, the relationship will become one-sided, since the care receiver can no longer help and support his or her relative (MacRae, 1998), and the caregiver has to take on new responsibilities and make decisions about their relative’s medical care, for example whether or not to accept professional care from a nursing home (Aneshensel, Pearlin & Schuler, 1993). These stressors are chronic, since the course of dementia can extend over many years (Barclay, Zemcou, Blass et al, 1985; Given, Collins & Given, 1988).

Many studies have shown that caregivers of people with dementia subjectively experience high levels of stress (e.g. George & Gwyther, 1986; Brodaty & Hadzi-Pavlovic, 1990; Fuller-Jonap & Haley, 1995; Pot, Deeg & Van Dyck, 1997), and objectively, caregivers have been shown to experience negative outcomes such as depression (Schulz, O'Brien, Bookwala & Fleissner, 1995), poor physical health (Grafstrom, Fratiglioni, Sandman & Winblad, 1992), compromised immune system function (Kielcolt-Glaser, Dura, Speicher, Trask & Glaser, 1991) and increased psychiatric symptoms (Irwin, Brown, Pattern, Hauger, Maschovich & Graut, 1991; Russo, Vitaliano, Brewer, Katon & Becker, 1995). Stress levels vary both between and within caregivers over time (e.g. Zarit, Reever & Bach-Peterson, 1980; Haley, Levine, Brown & Bartolucci, 1987), and psychological models of stress must explain such variability by suggesting factors which lead to and maintain stress.

**General Psychological Models of Stress**

Psychological models of stress attempt to explain how and why individuals experience stress and the mechanisms by which stressful events cause negative
emotional and physical outcomes. In the general psychological literature, there are three main types of models of stress (Cox, 1978):

1. **Response-based models (e.g. Seyle, 1956)**
   Such models see stress as a non-specific response and treat it as a dependent variable. The physiological response to stress is not thought to be related to the type of stressor (Seyle, 1956), and events are classified as stressful if and only if they are followed by the recognised physiological stress response. Seyle’s (1956) “General Adaptation Model” states that after a stressor, if continued exposure to the stressor is compatible with adaptation, the person’s normal level of resistance to stress is raised. If the stress response is prolonged, the level of resistance will eventually drop in a stage of “collapse”. It is thought that a prolonged stress response has a “wear and tear” effect that causes structural and functional damage to the person (Kagan & Levi, 1971; Levi, 1973, 1974). Applying this framework to caregiver stress would result in models concerned with measuring physical signs of stress and defining aspects of caregiving as stressful if they are followed by the physiological stress response.

2. **Stimulus-based models (e.g. Welford, 1973)**
   These models see stress as a set of causes, not a set of symptoms, and are concerned with defining what makes a situation stressful. They suggest that people have an inbuilt resistance to stress which varies from individual to individual (Korchin & Ruff, 1964; Ruff & Korchin, 1964), but if stress is greater than the level of resistance (or “optimum level of demand”, Welford, 1973), strain is caused. Applying this framework to caregiver stress would result in models that are concerned with how and when stressors exceed the level of resistance to stress.

3. **Interactional models (e.g. Cox & Mackay, 1976; Lazarus, 1976)**
   These models suggest that stress arises from a particular relationship between the person and the environment. There are five main stages to Cox’s model (Cox & Mackay, 1976; Cox, 1978):
   1. Sources of demand: The model allows for both internal and external sources of demand.
2. Perception of demand and perception of ability to cope: The model emphasises the importance of appraised, rather than actual levels of demand and ability to cope. If perceived demand exceeds perceived capability, there is an imbalance, and stress is likely to occur.

3. The response to stress: Emotional and psychophysiological changes occur and various cognitive and behavioural coping responses may be used in an attempt to reduce the imbalance between perceived demand and perceived ability to cope.

4. Actual and perceived consequences of the coping responses.

5. Feedback between all stages of the model.

Applying this framework to caregiver stress would result in models that are concerned with the factors that influence appraisal of stressors.

Models Linking Caregiver Stress with Care-Receiver Symptoms

Early research into caregiver stress supposed that variability in stress levels could be accounted for by variability in the stressor, that is, the symptoms and care needs of the care-receiver (Townsend et al, 1989). These models have parallels with stimulus-based models of stress (e.g. Welford, 1976) since they define the care-receiver's symptoms and care needs as stressful and expect all caregivers to experience strain. Townsend et al (1989) summarise two alternative relationships between caregiver stress levels and care-receiver symptoms. The “Wear and Tear” model supposes that caregivers experience outcomes that are more negative as their relative’s condition progresses. Caregivers’ social and emotional resources are thought to get “used up” so that their ability to cope with stressors is diminished with time. The “Adaptation” model supposes that caregivers experience fewer negative outcomes as time progresses, since they become expert at dealing with their relative’s condition. These models have similarities to Seyle’s (1956) response-based “General Adaptation model”, because attention is paid to the pattern of the stress response, rather than to the characteristics of the stressful situations. The “Adaptation” model is similar to Seyle’s “Stage of resistance”, whilst the “Wear and Tear” formulation is similar to the “Stage of collapse”, which results from the prolonged exposure to stress. The “Adaptation” model could be thought of as a truncated version of Seyle’s
conceptualisation, because the stressful situation (i.e. caregiving) is terminated before the stage of collapse by the care-receiver’s death.

By allowing for stress levels to change over time, both the “Adaptation” and “Wear and Tear” models attempt to account for within-caregiver differences in negative outcomes as well as between-caregiver differences, but they have opposite implications for intervention. If the “Wear and Tear” model can account for caregiver stress, intervention efforts should be timed to coincide with the later stages of dementia, when caregivers have fewest resources to avoid negative outcomes. If the “Adaptation” model can account for caregiver stress, intervention should be timed to coincide with the early stages of dementia to speed adaptation and minimize negative outcomes.

Some research has supported these models (e.g. Morycz, 1985; Deimling & Bass, 1986; Pearson, Verma & Nellett, 1988; Schulz, Tompkins & Rau, 1988; Stoller & Pugliesi, 1989), for example Eagles, Craig & Rawlinson (1987) found that stress increases in proportion to the severity of symptoms, supporting the “Wear and Tear” model. Gallagher-Thompson & Powers (1997) found that caregiver distress was greater when the care-receiver had moderate cognitive decline than when he or she had severe cognitive decline, and suggested that this supports the “Adaptation” model. However, caregiver distress at moderate symptom severity levels was also higher than caregiver distress at mild symptom severity levels, suggesting the data do not fully fit the “Adaptation” model.

The balance of evidence seems to argue against the “Wear and Tear” and “Adaptation” models. Zarit and colleagues found that caregiver burden was better predicted by coping style and resources than severity of the care-receiver’s symptoms (Zarit, Reever & Bach-Peterson, 1980; Zarit, 1982) and similarly the decision to institutionalise a relative was influenced by feeling unable to cope, which again was not related to care-receivers’ symptoms (Zarit, Todd & Zarit, 1986). Some studies find that caregiver depression levels remain stable over time (Pruchno, Kleban, Michaels & Dempsey, 1990; Keicolt-Glaser, Dura, Speicher, Trask & Glaser, 1991; Mullan, 1992; Collins, Stommel, Wang & Glaser, 1994) or decrease for daughter
caregivers but not for spouse caregivers (Zarit & Whitlach, 1992), and others find very little evidence to link the severity or duration of the care-receiver's symptoms with the caregiver's wellbeing (George & Gwyther, 1986).

Many researchers argue that these models are too simplistic to account for caregiver stress because they view the care-receiver's decline as a continuous and linear process, with gradually increasing stressors for the caregiver. In fact, the course of decline in dementia can be highly variable. Even within a diagnostic category, different symptom types have been shown to have different courses of decline. For example, in Alzheimer's Disease (AD), in the early phase of the disease, only higher level functions may be impaired, in the middle phase of the disease, deterioration in higher level functions may plateau out, but behaviour problems may increase, and in later parts of the disease the person may be less able to engage in behaviours such as wandering, but basic self care skills may be severely impaired (Haley & Pardo, 1989). Each individual with AD will also show variation in the precise type and amount of symptoms at each point in the disease, so that the "stage" of the dementia is not a very useful descriptor (Hope, Keene, Fairburn, Jacoby & McShane, 1999). It is not possible therefore to reliably predict the pattern of symptoms, and hence the stressors to which caregivers are exposed, from knowledge of the amount of time that has elapsed since onset of dementia.

In a two year longitudinal study (Pot et al, 1997), caregiver distress showed a linear increase with time for those caregivers who continued to care for their relative at home. It was argued that this supports the "Wear and Tear" model, but given the findings outlined above, it cannot be assumed that in the two-year period, care-receivers' functioning declined in a linear fashion. This relationship between time and caregiver distress may instead be accounted for by the relatively high proportion of care-receivers with "mild" (35%) and "minimal" dementia (22%) in this group, so that the observed relationship may have reflected the caregivers' adjustment to the caring role and their increased awareness of the likely course of the dementia.

Researchers may also fail to account for changes aside from symptom severity, which could affect caregiver distress. One study (Gilleard, Belford, Gilleard, Whittick &
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Gledhill, 1984) found that caregivers’ psychological distress declined over a three-month period, supporting the “Adaptation” model. However, during this time, the care-receivers began to attend a day-centre, so that change in caregiver distress could have been due to factors such as increased support and time away from caring that day-care provides (Pot et al, 1997). Other variables have been shown to be important in determining caregiver stress, such as daily hassles (Kinney & Stephens, 1989), competing responsibilities (Stoller & Pugliesi, 1989) and social support (Thompson, Futterman, Gallagher-Thompson, Rose & Lovett, 1993). Clearly then, it is too simplistic to suppose that there is a linear relationship between caregiver distress and the severity of care-receiver symptoms, or between caregiver distress and time since the onset of dementia.

Stress-Process Models
Stress-process models are interactional models of stress, and enable several factors to be taken into account in the prediction of caregiver outcome. Most of these models are based on the “Stress and Coping” paradigm of Lazarus and Folkman (1984), which views stress as a dynamic process: “a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being” (Lazarus & Folkman, 1984, pg 19). Pearlin et al (1990) developed one of the first stress-process models particularly applied to caregiving, and its main features are outlined below. Other stress-process models have a similar structure:

1. Background and context variables
These include details of the caregiver (e.g. age, sex, ethnicity), the caregiving history (e.g. pre-morbid relationship between caregiver and care-receiver, length of time in caregiving relationship), and available access to resources and informal or professional support.

2. Stressors
Primary stressors are objectively measured aspects of the care-receiver (such as cognitive status, problematic behaviour and ability to perform activities of daily
living) and subjectively measured caregiver overload and deprivation in the relationship with the care-receiver. Secondary stressors are role strains and intrapsychic strains that result from the primary stressors. Role strains include family conflict, job-caregiving conflict, economic problems and constriction of social life. Intrapsychic strains include lessening of self-esteem and mastery, role captivity (being an unwilling caregiver), loss of self and loss of sense of competence.

3. Mediators of stress
The main mediators of stress in the Pearlin et al (1990) model are coping styles and availability of social support.

4. Outcomes or manifestations of stress
These can include depression, anxiety, cognitive disturbance, yielding of caregiving role and physical health.

Stress-process models aim to predict outcome from a variety of background and context variables and stressor variables, which are mediated by certain psychosocial variables. The specific choice of variables depends on the particular stress-process model.

Variations on Pearlin et al’s (1990) model have been suggested (e.g. Haley, Roth, Coleton, Ford, West, Collins & Isobe, 1996; Ducharme, Levesque & Cossette, 1997). For example, the stress-process model has been used to examine negative health behaviour change in caregivers (Gallant & Connell, 1998), that is, behaviours such as increased smoking and drinking, decreased exercise and disrupted sleep patterns. It was found that such behaviour change was directly influenced by objective burden and depression symptoms, and that depression symptoms also mediated the effects of objective burden and self-efficacy on health behaviour change. Gallant & Connell (1998) argue that health behaviour change may be one mechanism by which caregiving leads to adverse health outcomes.

They focused on the so-called “Big Five” personality dimensions, Openness to experience, Conscientiousness, Extraversion, Agreeableness and Neuroticism (McCrae & Costa, 1986), and their relationship with problem-focused, emotion-focused and social support-focused coping style. In a study of 50 spouse caregivers for people with Alzheimer’s disease, multiple regression analyses showed that personality could explain 67% of the variance in emotion-focused coping and some of the variance in problem-focused coping and social support-focused coping. Emotion-focused coping was positively related to Neuroticism and negatively related to Extraversion, Agreeableness and Conscientiousness. Problem-focused coping was positively related to Extraversion and Conscientiousness, and negatively related to Neuroticism. Social support-focused coping was positively related to Extraversion and Agreeableness. Since problem-focused coping has been linked with decreased emotional disphoria, (e.g. Stephens, Norris, Kinney, Ritchie & Grotz, 1988; Moeller, Richards, Hooker & Ursino, 1992), and coping skills can be taught (Kahan, Kemp, Staples & Brummel-Smith, 1985), changing caregivers’ coping styles might be a useful intervention (Hooker et al, 1994). It does not seem that it would be necessary, however, as the authors suggest, to use personality tests to identify those caregivers who would benefit from changing their coping styles, since there are good measures of coping style available, such as the Ways of Coping Checklist (Lazarus & Folkman).

Aneshensel et al (1993) applied the stress-process framework to caregiver’s decisions to place their relative in an institution. Previously, institutionalization has been found to be more likely if the care-receiver is older (Cohen, Tell & Wallack, 1986; Dolinsky & Rosenwaike, 1988; Greene & Ondrich, 1990), more functionally impaired (McCoy & Edwards, 1981; Cohen et al, 1986; Greene & Ondrich, 1990), more cognitively impaired (Branch & Jette, 1982; Greene & Ondrich, 1990) and in need of help with instrumental activities (Branch & Jette, 1982). Institutionalization is also more likely if the care-receiver displays particular behaviours, such as extreme forgetfulness (Pruchno, Michaels & Potashnik, 1990), incontinence, night-time “misbehaviour”, wandering, hyperactivity (Knopman, Kitto & Deinard, 1988) or angry outbursts (Chenoweth & Spencer, 1986). It is thought that caregivers are more likely to place their relative in an institution if they are young, female, employed and have a high
income (Colerick & George, 1986), or are in poor health (Chenoweth & Spencer, 1986) or are extremely stressed or distressed (Colerick & George, 1986; Lieberman & Kramer, 1991).

The above factors linked with institutionalization fall into the categories of background and context variables and primary stressors in the stress-process model. Aneshensel et al (1993) predicted that the link between these variables and the decision to institutionalise would be mediated by psychosocial resources (such as social support, self-concept and caregiver health) and secondary stressors (such as family conflict, economic strain and role captivity). In fact, multiple regression analyses showed that the caregiver's sense of role captivity was the single most important mediating factor in the decision to place a relative in an institution, and many care-receiver characteristics such as cognitive function did not have a direct effect on the decision (Aneshensel et al, 1993). This seems to suggest that many variables in such stress-process models do not contribute significantly to outcome, and instead there are a few essential variables that have a large effect on outcome.

Gallagher-Thompson & Powers (1997) found that from the variety of primary stressors suggested in the Pearlin et al (1990) model, only one or two key measures could be chosen which would reliably predict depression scores. The measures of perceived burden and perceived general stress could explain significant proportions of the variance in caregiver depression scores without the addition to the analysis of measures of care-receiver cognitive status and objective burden. This suggests that analyses can be simplified by measuring only subjective burden and stressors, which have sufficient predictive value. It is not necessary to measure subjective and objective components of stressors separately (Braithwaite, 1996a), since it would seem that the person's own evaluation of how much they have to cope with is more relevant to the onset of depression than their actual workload.

These recent applications of the stress-process framework to caregiver stress suggest that it might be possible to reduce the number of variables required to predict outcome. This would be advantageous in designing support and intervention strategies for caregivers since it would enable more focussed interventions. The stress-process...
models imply different interventions depending on the exact combination of variables selected to predict caregiver stress. For example, various models have suggested changing coping style to more problem-focused strategies (Pearlin et al, 1990; Hooker et al, 1994), increasing social support (Pearlin et al, 1990), or reducing role captivity (Aneshensel et al, 1993). All stress-process models imply a caregiver-centred approach to intervention, which focuses on teaching new skills to caregivers and increasing their resources and ability to cope. However, some researchers have found that group intervention programs for caregivers have been unsuccessful in reducing caregiver distress (Callahan, 1989; Brody & Saperstein, 1989; Oktay & Volland, 1990), possibly due to the lack of available practical support in caregiving, such as respite care (Haley, Brownes & Levine, 1987). This has lead some to argue that since stress is inherent in the caregiving role, interventions which focus on helping the individual caregiver cope with stress will be unsuccessful (Abel, 1990). Instead, it is argued that social policy should change, to bring about a move away from individual interventions to a focus on sharing caregiving stressors more evenly between individual caregivers and formal support structures (Abel, 1990). The stress-process model has also been criticised for the lack of attention it pays to the relationship between the caregiver and care-receiver (Braithwaite, 1996b), since problems in caregiving can often be traced back to pre-existing family and relationship problems (Robinson & Thumber, 1979). Stress-process models do however, seem successful in accounting for variation in caregiver distress and suggest ways of supporting caregivers to reduce negative mental and physical health outcomes.

The “Emotion Work” Model

Mac Rae (1998) argues that caregiving involves “emotion work” (Hochschild, 1979, 1983), that is, attempts to shape and control feelings so that they fit with “feeling rules” (Hochschild, 1979), which are the social rules defining what we “ought to” or “have the right to” feel in a given situation. This is a Social Interactionist model (e.g. Blumer, 1972; Hewitt, 1991) in that it is concerned with caregivers’ appraisals of themselves and the way they present to others. In terms of the three types of psychological models of stress, it is a stimulus-based model, since it is concerned with highlighting the aspects of caregiving which cause stress.
From interviews with 22 caregivers, Mac Rae found qualitative evidence that caregivers do have to engage in managing feelings of anger, sadness and frustration in the caregiving situation. This, it is argued, could lead to negative outcomes for caregivers, since evidence suggests that efforts to control emotions can have a negative impact on mental and physical health (Wright, 1993). Particular feeling rules which were identified as being of relevance to caregiving were the beliefs: “It is wrong to be angry with my relative”, and “I should be a compassionate carer”.

Emotion work may have particular relevance to caregiving, since dementia may disrupt the ability of the care-receiver to control his or her own emotions, and comprehend and respond to others’ emotions (Coughlan, 1993). The emotion work model implies that interventions for caregivers should involve helping and supporting caregivers to manage their feelings with the aim of reducing the negative impact of emotion work on mental and physical health. Such support could consist of enabling discussion of feelings in a non-judgmental atmosphere, and encouraging caregivers to use emotion work strategies which other caregivers have found helpful, such as dealing with frustration by viewing the care-receiver’s behaviour as part of the dementia, or using humoring and pacifying techniques to reduce the care-receiver’s anger (Mac Rae, 1998).

The emotion work model is one model that acknowledges the impact of the caregiver-care-receiver relationship, but it is likely that interventions as suggested by the model would be incomplete. A focus on emotion work would fail to address concrete stressors in the caregiving situation, such as the practical tasks that need to be completed by the caregiver, attitudes of the caregiver, such as their willingness to care for the care-receiver, and resources such as social support. This is not a comprehensive model, and so adds little to the design of interventions beyond drawing attention to the importance of the emotional response to caregiving.

The “Crises of Decline” Model
Braithwaite (1996b) bases her conceptualisation of caregiver stress on threats to basic human needs for security, order, belongingness and self-esteem (Maslow, 1954), and defines caregiver “burden” as the frustration of these needs. She sees the caregiving
relationship as passing through five “crises of decline”, which upset the caregiver - care-receiver relationship by threatening the basic human needs. It is argued that the crises of decline arise in all dementia caregiving relationships, because the nature of caring for a relative with dementia deviates from cultural norms or expectations of care, which are mainly based on the parent-child relationship (Braithwaite, 1996b). The crises are:

(i) The caregiver sees degeneration in the care-receiver whilst accepting responsibility for their care;
(ii) The caregiver is not socialised for care of a degenerating relative, only for the care of children;
(iii) The caregiver and care-receiver may become enmeshed in the caregiving relationship;
(iv) The relationship between the caregiver and care-receiver will change;
(v) The caregiver and care-receiver may be unwilling to be in a caregiving relationship.

Braithwaite’s (1996b) model is an extension of interactional models of stress. Braithwaite sees the crises of decline as both compatible with a stress-process model of caregiving, in that the crises could be described as stressors, and as additional to current stress-process models, since the crises take account of the relationship between caregiver and care-receiver. There are parallels between the crises of decline and the emotion work model (Mac Rae, 1998), since both recognise cultural beliefs about caregiving and the emotional impact of changes in the relationship between the two parties. Similarly, the fifth crisis is similar to the concept of role captivity (e.g. Aneshensel et al, 1993) used in many stress-process frameworks.

Braithwaite (1996b) incorporates the crises of decline into a model which has much in common with other stress-process models, but which merges individualistic aspects (stressors and resources) with relational aspects (crises of decline) to predict outcome. She suggests that both individualistic and relational aspects contribute to burden (frustration of basic needs), and that burden has an impact on mental health outcome, possibly mediated by buffers such as social support, physical health and material
well-being. In addition, she suggests that individualistic aspects will have a direct influence over mental health outcomes.

Regression analyses were used to test this model (Braithwaite, 1996b), based on data from 144 primary caregivers of elderly people with dementia or other physical or mental illnesses. It was found that burden, as defined by Braithwaite, could be explained by the crises of decline, and not by stressors and resources. Conversely, mental health outcome was sufficiently predicted by stressors and resources, without the need to include the crises of decline in the analysis. There was evidence that burden contributed to poor mental health, and this effect was mediated by problem-focused coping. However, no evidence was found to support the role of other buffers in the model.

Taken together, Braithwaite's results indicate that it is possible and useful to separate out social-relational variables from other variables within stress-process frameworks. Maslow's (1954) theory receives some support, in that burden has a direct negative effect on mental health. Braithwaite argues that both individualistic and relational variables should be taken into account when designing interventions, since previously the success of interventions based on reducing caregiver workload and increasing resources (e.g. Oktay & Volland, 1990; Lawton et al, 1989) has been constrained by the failure to recognise the impact of relational variables. Braithwaite suggests that whilst such individualistic interventions are important, they will not be adequate to completely relieve burden, and indeed, this may be an impossible goal. It is possible that alongside individual interventions, it would be useful to attempt to ease the impact of the crises of decline using emotion-based and discussion-based interventions, such as the emotion work approach described above (Mac Rae, 1998).

Braithwaite also argues that burden is not only a threat to mental health, but also to human rights (Braithwaite, 1992), and that interventions must begin to move away from “glorifying family care and limiting options for shared community care” (Braithwaite, 1996b, pg.169), and instead focus on changing social structures to distribute the burden of care more equitably (Abel, 1990).
Conclusions

Of the psychological models reviewed here, stress-process models, including Braithwaite's (196b) model are the most successful in accounting for within- and between-caregiver variation in stress, because they allow the impact of multiple variables to be considered. Within these models, variables can be compared, so that interventions can be focussed on changing those variables that most significantly predict caregiver distress. Research has shown, therefore, that interventions should focus on reducing role-captivity, increasing social support, and changing coping style from emotion-focussed to problem-focussed.

Stress-process models are incomplete, however, without the inclusion of relationship variables, such as those in the Mac Rae (1998) and Braithwaite models (1996b). These models draw attention to the inevitability of stress and distress in the caregiving situation and suggest that it is not enough to expect caregivers to reduce their distress by changing the way they cope. Time must also be given to discussion of the emotional impact of caregiving, and practical help such as respite care must be available. Overall then, studies of caregiver stress suggest that interventions must be multi-faceted in order to be successful in reducing caregiver distress and negative physical and mental health outcomes. Interventions must have individualistic aspects (e.g. helping caregivers to change their coping skills and social resources), relational aspects (e.g. recognising and enabling discussion of the emotional impact of the change in relationship with the care-receiver) and practical aspects (e.g. providing concrete help such as home care-workers, day-care services and respite facilities). These types of intervention would be hard to design and costly to deliver, and as yet, no such comprehensive intervention package has been evaluated in the literature. It is likely that they would be more successful at reducing caregiver stress and distress than currently available interventions.
REFERENCES


Braithwaite, V. (1992) Caregiving burden: Making the concept scientifically useful and policy relevant. Research on Aging, 14, 3-27


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CLINICAL SECTION
INTRODUCTION

This section provides an outline of clinical activity carried out over the three year course. For each of the six placements, a summary of the client group, therapeutic methods utilised and other experience gained on placements is given. For four of the six placements, this is followed by a summary of the clinical Case Report. Case Reports are presented in full in Volume Two of the Portfolio, together with additional details about the six placements.
ADULT MENTAL HEALTH
CORE PLACEMENT

Placement Details

Dates: October 1997 – April 1998
Supervised by: Dr Metka Shawe-Taylor
NHS Trust: East Surrey Priority Care NHS Trust
Base: Dorking Community Mental Health Team,

Summary of the Placement
This was the first placement, during which the candidate gained basic skills in assessment and treatment for a range of psychological difficulties. The main approach was Cognitive Behaviour Therapy (CBT). The candidate also gained experience in teaching and neuropsychological testing.
Therapeutic Interventions carried out on Placement

- Used CBT with a 24 year-old female presenting with anxiety about bladder control
- Used CBT with an 18 year-old female presenting with depression and social anxiety
- Used CBT with a 16 year-old male presenting with Obsessive-Compulsive Disorder
- Used CBT with a 47 year-old female presenting with thunder phobia
- Used CBT with a 37 year-old female presenting with Panic Disorder

Assessments and Short-term Work carried out on Placement

- Used neuropsychological assessment to make differential diagnosis between brain injury and anxiety in a 45 year-old male, using WAIS-R, WMS-R, Controlled Oral Word Association test, Wisconsin Card Sorting Test, Beck Depression Inventory and Beck Anxiety Inventory
- Carried out three neuropsychological assessments of two males and one female involved in forensic services using tests as above, and the Stroop test and National Adult Reading Test
- Taught about “Anger” on the CBT Diploma course

Other Experience

- Attended a supervision group for clinicians working with survivors of child sexual abuse
- Observed other professionals at work including Consultant Psychiatrist, Social Worker, Community Psychiatric Nurse and Drug and Alcohol Nurse
- Attended the CBT Special Interest Group
Differential diagnosis of functional from organic memory problems in a forty-four year-old man.

Assessment
Mr D was a 44 year-old white male referred by the Mental Health Nurse Practitioner at his own request for an assessment of memory functioning. His concerns included poor concentration, word finding difficulties, problems with learning new information and loss of confidence in his abilities. At the time of the referral, Mr D was on sick leave from his job as a teacher with a diagnosis of “acute stress reaction”. Mr D’s sick leave was precipitated by a change in his teaching responsibilities and an assessment of his teaching skills that had resulted in a poor report. Assessment was carried out using clinical interview, self-report measures of depression and anxiety and neuropsychological testing of general intellectual functioning, memory functioning, and executive functioning.

Formulation
Neuropsychological testing showed Mr D’s general intellectual functioning and executive functioning to be in the high average range, but with significant strengths and weaknesses in his intellectual profile. Mr D’s memory functioning was within the normal range, but significantly lower than his general intellectual functioning. Mr D’s uneven pattern of abilities could be due to a severe fever and viral illness he suffered at the age of 12, that could have caused minimal brain damage. An alternative formulation using the Cognitive model was used to explain why Mr D noticed problems in his memory functioning, since many people have similarly uneven psychometric profiles but without reporting concerns about their abilities. Mr D described himself as anxious and perfectionist, and said he had a tendency to compare himself unfavorably with others in terms of his academic abilities. When Mr D was a child, his family valued academic ability highly, and Mr D was told he was a bright boy, but after his illness his parents thought he was slower with his academic work. These early experiences resulted in a core belief “I am academically less able than others” and associated assumptions and compensatory strategies. When Mr D’s teaching work became more stressful, his core belief was activated, resulting in negative automatic thoughts about his abilities and an increase in anxiety. Since
anxiety can have a negative impact on cognitive performance, Mr D’s pre-existing weaknesses in memory were highlighted, serving to reinforce his core belief and maintain his anxiety.

**Intervention and Outcome**

The results of the neuropsychological assessment were discussed with Mr D, who was able to use the information to make sense of his difficulties. Mr D was offered Cognitive Behaviour Therapy to address his anxiety, but he declined. Instead he decided to continue to meet with the Mental Health Nurse Practitioner for counselling sessions. The Mental Health Nurse Practitioner was advised of the results of the assessment and agreed to discuss with Mr D practical strategies for reducing stress.
PEOPLE WITH LEARNING DISABILITIES
CORE PLACEMENT

Placement Details
Supervised by: Mr Derek Blackburn
NHS Trust: Hastings and Rother NHS Trust
Base: Community Learning Disability Service,

Summary of the Placement
The main focus of this placement was on behavioural assessment and therapy used in community settings. The candidate developed group-working skills and gained extensive skills in staff liaison. During this placement a Service Related Research Project was undertaken, supervised by Mr Peter Baker.
Therapeutic Interventions carried out on Placement

- Carried out an extended behavioural assessment (LaVigna’s model) of a 25 year-old male presenting with severe LD and highly aggressive behaviour using assessment tools including a Functional Assessment interview, Pathways to Independence, Motivational Assessment Scale, Reinforcement Inventory, and scales of activity levels and communication
- Used CBT with a 35 year-old male with moderate LD presenting with anxiety and panic attacks, and worked with staff to increase the client’s independence
- Carried out a behavioural assessment of self-injurious behaviour and screaming in a 41 year-old female with severe LD using momentary time sampling
- Used Behavioural Relaxation Training with a 38 year-old female with severe LD and agitation
- Co-ordinated and facilitated a nine-week Personal Development Group focussing on feelings and relationships for young adults with mild-moderate LD

Assessments and Short-term Work carried out on Placement

- Presented a four-month client assessment to the Challenging Needs Service Team
- Assessed a couple’s understanding of sexual relationships
- Carried out a neuropsychological and behavioural assessment of a 68 year-old male showing aggressive behaviour and confusion using WAIS-R, National Adult Reading Test and a functional assessment interview

Other Experience

- Attended a two-day course: “Strategies for Crisis Intervention and Prevention”
- Presented results of the Service Related Research to the Challenging Needs Service Team
A multi-element behavioural assessment of challenging behaviour in a man with learning disabilities and autistic tendencies.

Background
Mr G was a 25 year-old white male who was referred to the Challenging Needs Service (CNS) for an assessment of severely aggressive behaviour towards staff and other residents in his community home. The assessment was carried out using a Multi-Element Behavioural Model (Baker et al, 1998)\(^1\) that has as its central concerns increasing the client’s quality of life and using only non-aversive intervention strategies. Assessment using this model must include environmental analysis, analysis of antecedent and consequent stimuli, analysis of the communicative functions of behaviour, identification of potential reinforcers for the client, and analysis of the resources and skills of staff responsible for the intervention plan.

Assessment
Mr G lived in a secure flat within a community home for people with learning disabilities, and received 24-hour supervision from staff who worked only with him. Staff reports suggested Mr G became agitated at least once a day, and without staff intervention his agitation would increase, culminating in physical assault using biting and scratching. When prevented from assaulting Mr G would often damage property or scratch or bite his own arms. An initial assessment designed by the CNS showed that Mr G’s quality of life was severely affected due to his challenging behaviour. The multi-element assessment was carried out over four months, comprising an interview with staff, a review of the case notes, the Functional Analysis of Problem Behaviour Interview and momentary time sampling from video observations. Staff completed a measure of how Mr G communicates common messages, the Pathways to Independence Checklist, the Guernsey Community Participation and Leisure Assessment, a reinforcement inventory, the Motivational Assessment Scale, regular records of Mr G’s activities and records of all occurrences of challenging behaviour.

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Formulation
Environmental analysis showed that Mr G’s environment tended to be under-stimulating, with infrequent opportunities for community activities and little interaction with staff. Antecedents of aggressive behaviour were often changes in the environment or changes in routine, so as a consequence Mr G was able to avoid opportunities for skills building and new activities. Analysis of the communicative function of challenging behaviour showed that Mr G’s understanding of others’ communication was very limited, but staff tended to overestimate his abilities and use inappropriately complex language. Mr G had no means of communicating anger or distress except by becoming aggressive. Analysis of staff resources and skills showed that Mr G had strong trusting relationships with staff. He was settled in his home and assaults were at a low frequency, but this was achieved by tight control, staff supervision and avoidance of any possible triggers, including changes in the environment. In summary, aggression had become an extremely efficient means of escape from aversive stimuli for Mr G since staff responded to aggression by immediately removing demands form Mr G in order to calm him. The staff response of avoiding new experiences served to maintain Mr G’s aggression and his under-stimulation by limiting opportunities for him to build up tolerance to anxious feelings in new situations.

Intervention
From the assessment information a multi-element intervention plan was designed to incorporate the proactive strategies of ecological manipulations and positive programming to complement the reactive strategies already in place. The aims of the intervention were to increase Mr G’s ability to communicate (particularly to indicate a wish to exit a situation) and to gradually increase activity levels to build up tolerance of novel stimuli.

Outcome and Evaluation
At the time of writing the report the intervention plan was still subject to discussion and revision in conjunction with the staff team. The efficacy and other methodological considerations of the assessment within an NHS context were discussed.
Placement Details

Dates: October 1998 – April 1999
Supervised by: Dr Fiona John
NHS Trust: Ashford and St Peter’s Hospitals NHS Trust
Base: Dept. of Child & Family Psychological Medicine, St Peter’s Hospital, Chertsey

Summary of the Placement
The placement took place in a multi-disciplinary team. The candidate began working with Systemic Therapy as well as learning to adapt Behavioural and CBT skills to a younger age group.
Therapeutic Interventions carried out on Placement

*Family work:*

- Used Behavioural Management to address disturbed sleep in a 4 year-old female with Fetal Valproate Syndrome and Systemic Therapy with the parents to address impact of disability on the family
- Used Systemic Therapy with a family coping with a 4 year-old son showing disruptive behaviour and difficult relationships with two teenage daughters
- Used Externalizing and Behaviour Therapy with a 6 year-old male with enuresis and Narrative Therapy to enhance parenting skills

*Individual work:*

- Used CBT with a 16 year-old female presenting with depression and anxiety, and carried out risk assessment and risk management of suicidal ideation
- Used CBT and externalizing with a 10 year-old female presenting with OCD
- Used supportive counselling with a 14 year-old male not attending school
- Used Narrative Therapy with a 9 year-old male presenting with anxiety about bullying and coping with insulin-dependent diabetes

Assessments and Short-term Work carried out on Placement

- Carried out a teaching and discussion session about “Adolescence” for Foster Carers
- Participated in the Family Therapy Assessment Clinic
- Designed a family intervention with a Community Nurse to address implications of disability
- Carried out a family session involving discussion of risk to children and negotiated a referral to Social Services
- Carried out a behavioural assessment of a two year-old female showing multiple medical problems and active and disruptive behaviour
- Carried out a neuropsychological assessment of a 15 year-old male using WISC-III, WORD and Rivermead Behavioural Memory Test
- Carried out a neuropsychological assessment of a 5 year-old female using WPPSI
• Carried out a neuropsychological assessment of a 10 year-old female using WISC-III

Other Experience

• Took part in one assessment at the Child Development Clinic
• Visited Social Services Family Centre to observe Family Therapy with children at risk
• Attended a psychodynamic supervision group and presented cases for discussion
• Met with other professionals including Consultant Psychiatrist, Consultant Paediatrician, Social Workers, Child Psychotherapists and Diabetes Nurse Specialist
• Attended several presentations including the Child and Family Special Interest Group
• Used a variety of psychometric tests including Spence Children’s Anxiety Scale, Birleson Depression Scale, Leyton Obsessional Inventory, Conners Behavioural Rating Scales
• Used “therapeutic letters” with some clients
Addressing the disturbed sleeping patterns of a four year-old girl with a diagnosis of Fetal Valproate Syndrome.

Assessment
JR was a 4 year-old white girl referred for help with behavioural problems after a developmental assessment. She lived with her parents, Mr and Mrs R and a younger brother, HR. J’s parents reported three problems with J: disturbed sleep, primary enuresis and “tantrums”, which were in the context of a diagnosis of “Fetal Valproate Syndrome”. Fetal Valproate Syndrome is a rare condition caused in this case by in utero exposure to sodium valproate that Mrs R was taking to control her epilepsy. The condition comprises characteristic facial features, low birth weight and developmental delay. Mr and Mrs R had been misadvised by medical professionals during pre-conception counselling, so were unaware of the risk of this condition. J was diagnosed at six months, and at this time she had significant motor and language delay, but by 47 months, J’s development was within the normal range in nearly all areas. Mr and Mrs R presented with many concerns about J’s development and viewed her as a “damaged” child. Mr and Mrs R chose to work on J’s sleep difficulties since they were concerned about medication which had been proscribed to help J sleep. Mr and Mrs R reported problems with getting J to settle at night, and once asleep J tended to wake and be unable to settle again without her parents staying in her bed. She also woke early and went into her parents’ bedroom repeatedly. J’s parents said J had not had a full night of undisturbed sleep since she was 2 years old.

Formulation
A behavioural model was used to consider J’s difficulties, and parental concerns about J’s syndrome were seen as a maintaining factor, since they contributed to inconsistent management of J’s behaviour. It was thought that behavioural intervention would be most effective if it was coupled with exploration of the meaning of J’s diagnosis within the family and wider network.

Intervention
The first aim of the intervention was to use behaviour management strategies to address J’s sleeping problems. Strategies included providing information about sleep
patterns and developing new sleep associated behaviours. The second aim was to
provide Mr and Mrs R with emotional space to discuss the impact of J’s diagnosis,
and to use systems thinking including ideas from Narrative therapy to explore beliefs
about J. Therapeutic work was carried out mainly with Mrs R over a period of three
months.

Outcome and Evaluation
By the end of the intervention behaviour recording showed significant improvements
in J’s sleep pattern, and J had stopped taking medication to help her sleep. Both
parents recognised improvements in J’s sleep and felt confident about maintaining
these gains in future. Additionally, Mr and Mrs R had put in place their own
successful interventions to address J’s enuresis. Changes were apparent in Mr and
Mrs R’s attitudes towards J and both parents said they no longer had to think about J’s
diagnosis on a day-to-day basis. J was no longer viewed within the family as a
“damaged” child, and Mr and Mrs R were keen to promote their view of J as an able
child to friends, family and professionals.
NEUROPSYCHOLOGY AND PAIN MANAGEMENT
SPECIALIST PLACEMENT

Placement Details
Dates: April 1999 – October 1999
Supervised by: Mr Drew Alcott and Ms Carol Sellars
Organisation: Westminster Health Care Plc
Base: Unsted Park Hospital, Godalming

Summary of the Placement
This placement was carried out in a private sector rehabilitation hospital. The first two months were spent with Carol Sellars in the Pain Management Service, using a CBT approach. The final four months were spent with Drew Alcott in the Brain Injury Rehabilitation Unit using behavioural and cognitive-behaviour skills within a neuropsychological model, and developing advanced neuropsychological assessment skills.
Pain Management Experience

Therapeutic Interventions carried out on Placement
- Used CBT with a 61 year-old female presenting with depression and back and leg pain
- Used CBT with a 42 year-old female presenting with anxiety and depression and back pain
- Used supportive counselling with a 69 year-old female following diabetes-related bilateral leg amputation
- Used supportive counselling with a 31 year-old female with neck and back pain
- Used supportive counselling with a 28 year-old female with neck pain
- Used CBT with a 36 year-old male with social anxiety, low self-esteem and poor assertiveness skills
- Used CBT and supportive counselling with a 29 year-old female with fibromyalgia, a history of childhood sexual abuse and anorexia nervosa
- Carried out relaxation sessions for the pain management group

Assessments and Short-term Work carried out on Placement
- Carried out an initial assessment of a 37 year-old male with depression and back and leg pain
- Carried out an initial assessment of a 54 year-old male with depression, dysexecutive syndrome and back pain
- Carried out an initial assessment of a 19 year-old female with depression, social anxiety and back and neck pain

Other Experience
- Observed assessments by a Physiotherapist and a Consultant Anaesthetist
- Joined group pain management sessions run by Occupational Therapists, Physiotherapists and Fitness Instructors
- Attended a “Busy Back” one-day back pain prevention course
Neuropsychology Experience

Therapeutic Interventions carried out on Placement

- Used CBT with a 52 year-old male with depression and anxiety
- Used behavioural therapy to increase communication and initiation of activities with a 20 year-old male with severe diffuse brain damage
- Used supportive and exploratory counselling sessions with a 46 year-old female with possible factitious or conversion disorder during extended neuropsychological assessment

Assessments and Short-term Work carried out on Placement

- Carried out neuropsychological assessments of 10 clients between the ages of 24 and 73
- Gained experience of working with clients with a variety of difficulties including left hemiplegia, paraplegia, Post Traumatic Stress Disorder, frontal lobe damage, dysarthria, dysphasia, memory impairment, and severe and multiple cognitive impairments
- Gained experience of presenting problems following conditions such as stroke, road traffic accidents, Herpes Simplex Encephalopathy, illegal drug use, anoxia, post-concussional syndrome, optic nerve glioma and hydrocephalus
- Carried out CBT assessment interview with a 36 year-old female presenting with paraplegia following transverse myelitis
- Carried out the Western Neuro-Sensory Stimulation Profile to assess a 70 year-old female presenting with low-arousal state following a subarachnoid haemorrhage
- Carried out an assessment interview with a 62 year old male presenting with depression and severe dysphasia following CVA
- Carried out behavioural observations of a 62 year-old male presenting with challenging behaviour following CVA
Other Experience

- Participated in groups for inpatients on Brain Injury Rehabilitation Unit including the Cooking Group, Communication Group, Cognitive Group, Morning Orientation Meeting and Brain Injury Education Group
- Gained familiarity with tests of frontal lobe functioning including Behavioural Assessment of the Dysexecutive Syndrome, Trails Test, Verbal Fluency tests, Cognitive Estimations Test
- Gained familiarity with tests of general intellectual functioning including WAIS-R and National Adult Reading Test
- Gained familiarity with tests of memory and perception including Adult Memory and Information Processing Battery, Visual Object and Space Perception Battery, Left-right orientation test
- Gained familiarity with screening tests and specialised tests including Token Test, Orientation monitoring, Rey 15 figure test, Modified Mini Mental State exam
- Visited other Brain Injury Units in private and NHS services
- Helped to train other professionals in the use of neuropsychological tests
Cognitive Therapy for symptoms of post-concussional syndrome following mild head injury.

Assessment
Mr C was a 52 year-old white male referred to a private rehabilitation hospital following a mild head injury sustained in a cycling accident. He presented with symptoms of Post-concussional syndrome including low mood, headaches, shoulder and neck pain, vertigo and memory and concentration problems. He had no history of treatment for mental illness, but in the past had experienced physical symptoms related to anxiety. At the time of the assessment, Mr C was on sick leave from his job with a computer company. He had received successful inpatient treatment for depression before the referral. A thorough assessment of Mr C’s impairments, disabilities and handicaps was undertaken, using clinical interview, neuropsychological tests and Functional Independence Measure / Functional Assessment Measure. Neuropsychological tests used were the National Adult Reading Test – Restandardised, Adult Memory and Information Processing Battery, Trails Test, Token Test, Verbal Fluency Test, Wechsler Adult Intelligence Scale – Revised, Cognitive Estimations Test, Modified Wisconsin Card Sorting Test and Behavioural Assessment of Dysexecutive Syndrome. Mr C had impairments in motor and cognitive speed, verbal fluency and in learning and memory for verbal information. He was emotionally distressed and appeared to have difficulty accepting the consequences of his accident. He was limited in his social, work and marital roles and his subjective quality of life had suffered as a result of the accident.

Formulation
Formulation was informed by research into Post-concussional syndrome. The formulation considered the psychological factors that could have lead to the persistence of impairments beyond the expected healing time following mild head injury. Mr C’s perfectionist tendencies, his history of anxiety and expectations about the result of head injury were thought to have played a role in the maintenance of Mr C’s symptoms.
Intervention
The intervention formed part of a wider rehabilitation programme which aims to improve quality of life through increasing independence, supporting adjustment to disability, reducing care requirements and promoting return to employment where appropriate (Oddy et al, 1999). The intervention comprised 10 sessions of Cognitive Therapy with the aim of reducing the impact of mood on post-concussional symptoms.

Outcome and Evaluation
Based on judgements of Mr C as mildly depressed, it was hoped that he would engage readily in Cognitive Therapy and make rapid progress. However, by the time of Mr C’s discharge (the timing was decided by funding considerations) Mr C’s depression had worsened significantly, thus blocking his ability to use cognitive strategies to manage Post-concussional symptoms. Toward the end of therapy information about Mr C’s early experiences and personality emerged, so that a core belief “I am useless” was identified. The worsening of depression was formulated as due to the process of rehabilitation, during which Mr C became increasingly aware of the permanence of his difficulties (especially his disabling headaches). The process of therapy itself also contributed to the worsening of depression, since it involved Mr C discussing his feelings for the first time since the accident, and possibly increased activation of core negative beliefs. Ethical issues were discussed relating to carrying out therapy in the context of a time-limited stay at a private hospital.

OLDER ADULTS
CORE PLACEMENT

Placement Details

Dates: October 1999 – April 2000
Supervised by: Miss Catherine Dooley
NHS Trust: Kingston and District NHS Trust
Base: Psychology Services for Older Adults, Elmside, Surbiton Hospital.

Summary of the Placement

The placement mainly involved working with clients with complex problems so that the candidate was required to adapt existing therapeutic techniques to engage clients and meet complex needs. The candidate gained further experience of neuropsychological testing, with some supervision from Dr Anna Iwaniki.
Therapeutic Interventions carried out on Placement

- Used CBT with an 80 year-old female presenting with panic attacks
- Used CBT and systemic therapy with a woman and her 79 year-old mother presenting with anxiety and panic attacks
- Used supportive counselling and CBT with a 73 year-old female presenting with low self-esteem
- Used life review, supportive counselling and neuropsychological assessment to help a 69 year-old female adjust to the onset of dementia
- Used supportive counselling to attempt to engage a 75 year-old female with severe and long-standing depression
- Used behaviourial techniques and liaison with the family and staff of a 69 year-old male presenting with obsessional behaviour and frontal lobe damage
- Designed and co-facilitated a CBT “Stress Management Group for Carers”

Assessments and Short-term Work carried out on Placement

- Carried out a CBT assessment of a 64 year-old female presenting with chronic pain
- Carried out a neuropsychological assessment of a 76 year-old male presenting with memory problems
- Carried out a neuropsychological assessment of an 85 year-old female with Parkinson’s Disease
- Carried out a neuropsychological assessment of a 69 year-old man leading to diagnosis of frontal lobe impairment

Other Experience

- Presented work on stress-management group for carers to a Psychology Specialty Meeting
- Attended presentations and talks including the Older Adults Special Interest Group
- Developed assessment tools for money use and sequencing for use on inpatient dementia wards
• Developed competence in using neuropsychological assessments designed for older adults, including the Middlesex Elderly Assessment Scale and the Dementia Rating Scale
• Used "therapeutic letters" with some clients
A stress management group for carers of older adults with dementia or mental health problems.

Background
This case report explored the experience of co-running a Cognitive Behaviour Therapy (CBT) stress-management group for four female carers of older adults. The group was co-facilitated with the Counsellor for Carers, and comprised six fortnightly sessions of 90 minutes each.

Group Content
The group was designed to be psychoeducational and supportive in its tone. Sessions used a mixture of exercises, information giving and group discussion. The main themes for each session are outlined below:
Session 1: A general overview of the nature of stress and its impact on functioning.
Session 2: An exploration of individual coping styles and discussion of problem solving as a carer.
Session 3: An educational session about how looking after your body and mind, through diet exercise and relaxation, can aid coping.
Session 4: Discussion of the Cognitive model and introduction to the technique of challenging thoughts.
Session 5: Assertiveness skills were explored using group discussion and role-play.
Session 6: Summary and review.

Evaluation
There were three aspects to the evaluation of the group. The first was to measure carer change. This was done using standardised questionnaires (General Health Questionnaire, Carers' Strain Scale, Mood Scale and Coping Responses Inventory) and subjective reports before and after the group. The second aspect of evaluation was to measure the effectiveness of the session. This was done using observation forms after each group session and through a feedback meeting between the two facilitators at the end of the course. The third aspect of evaluation was to explore the experience of co-working across professions through an open-ended interview.
Outcome
Since the group size was too small to draw conclusions about patterns of carer change, descriptive data for each member was provided from the pre-group and post-group measures. All group members gave positive feedback about the group. The efficacy of each session was explored, and possible future changes were suggested for the course. The open-ended interview highlighted several differences in the style of working between the two facilitators and suggested themes that might explain such differences. Themes emerged at the level of the working relationship, professional approach and standards, the professional group and the working environment.

Conclusions
The group was successful in its aim of giving a coherent introduction to stress-management skills for carers of older adults, and partially successful in reducing the stress and distress of carers. The low number of group members was a major problem for the group and the service, and future possibilities for increasing group attendance were discussed.
SYSTEMIC THERAPY WITH ADOLESCENTS
SPECIALIST PLACEMENT

Placement Details

Dates: April 2000 – September 2000
Supervised by: Dr Vivien Senn
NHS Trust: Kingston and District NHS Trust
Base: Child & Family Consultation Centre, Richmond Royal Hospital
and Richmond Youth Offending Team, Teddington.

Summary of the Placement

The placement focussed on developing a systemic approach based on a Post-Milan Social Constructionist framework. The candidate undertook individual work with adolescents and joint work with families, enabling development of systemic methods and techniques. There were opportunities to be part of the reflecting team in a Family Assessment Clinic and to participate in the newly created multi-agency Youth Offending Team.
**Therapeutic Interventions carried out on Placement**

- Used systemic therapy with a 14 year-old girl presenting with school refusal and somatic symptoms, and used a reflecting team technique with the girl and her mother
- Used systemic therapy with a 15 year-old girl presenting with anorexia nervosa
- Used systemic therapy and CBT with a 15 year-old girl presenting with severe anxiety
- Used systemic therapy with a 14 year-old boy and his family presenting with difficult family relationships
- Used systemic therapy and CBT with a 16 year-old girl presenting with depression and psychotic symptoms

**Short-term Work carried out on Placement**

- Carried out a one-off systemic intervention of a 16 year-old girl presenting with somatic symptoms
- Used a reflecting team in a self-harm assessment of a 16 year-old girl
- Joined as part of the reflecting team for several systemic family assessment clinics

**Other Experience**

- Observed self-harm assessments in the hospital and clinic settings
- Joined in discussions to set up the Clinical Psychologist’s role in the Youth Offending Team
- Joined in staff training events to develop a new assessment model for the Children and Families service
- Attended Research Group meetings
- Attended Academic events
RESEARCH SECTION
INTRODUCTION

This section contains a Service Related Research Project carried out in the first year during the People with Learning Disabilities Placement, a Literature Review completed during the second year, and a Major Research Project carried out over the second and third years.
The use of the Periodic Service Review to audit the implementation of a model of support for people with challenging behaviour in a British care setting.
ABSTRACT

Title: The use of the Periodic Service Review to audit the implementation of a model of support for people with challenging behaviour in a British care setting.

Objectives: To determine whether a multi-element model (LaVigna & Willis, 1995) can be implemented effectively in Britain. To test the assumption that there will be differences in levels of implementation between elements of the model.

Design: Collation and analysis of all Periodic Service Review (PSR) forms available for clients served by the Challenging Needs Service.


Participants: Eight clients with severe challenging behaviour, involved with the Challenging Needs Service for between one and three years.

Main Outcome Measures: Mann Test for Trend and descriptive statistics to explore differences between elements in levels of implementation across time.

Results: All elements of the support plan were successfully implemented and there was evidence to suggest that elements were not all implemented at the same rate.

Conclusions: The model can be successfully implemented in Britain, but services must target resources to address the speed of implementation of each element. Research in other countries would clarify whether the differences found between elements are peculiar to British services, or are a feature of the model.
INTRODUCTION

The recent focus on evidence based practice within Clinical Psychology means that there must be ongoing service evaluation to ensure improvement to systems of clinical work (e.g. Øvretveit, 1992; Hutchings & Pope, 1998). The present study aims to contribute to service evaluation in a Learning Disabilities service by auditing the implementation of a model of assessment and treatment of Challenging Needs.

Peripatetic services for people with challenging behaviour use a variety of intervention procedures and theoretical approaches. One such model of intervention is that of LaVigna and colleagues (LaVigna & Donnellan, 1986; LaVigna & Willis, 1995; Baker, LaVigna & Willis, 1998), which is used by Hastings and Rother NHS Trust Challenging Needs Service. LaVigna advocates a thorough functional analysis of the target behaviour (LaVigna & Donnellan, 1986) which should include environmental analysis, analysis of antecedent and consequent stimuli, and analysis of the communicative functions of behaviour (LaVigna & Donnellan, 1986). Assessment should also include analysis of potential reinforcers for the client, and analysis of the resources and skills of staff responsible for the implementation of the support plan (LaVigna, Willis, Shaull, Abedi & Sweitzer, 1994).

The intervention plan proposed by LaVigna is a multi-element approach which includes proactive strategies, consisting of ecological manipulations, positive programming and focussed support strategies, and reactive strategies (e.g. LaVigna & Willis, 1995). There is also a need for staff training and data collection (Baker et al, 1998). All elements work together to bring about reductions in challenging behaviour and improvements in “Quality of Life”. LaVigna’s multi-element model is described in detail in Appendix 1.

To monitor the implementation of the support plan, the Periodic Service Review (PSR; LaVigna et al, 1994) is used. The PSR is a system for assessing and assuring service quality within health-care or educational settings developed by LaVigna and colleagues at the Institute for Applied Behavioral Analysis, USA (LaVigna et al, 1994). It was developed from two approaches to management: Organizational
Behavior Management (e.g. Crowell & Anderson, 1983) and Total Quality Management (Deming, 1986). LaVigna et al (1994) describe the PSR system as having four main components: performance standards, performance monitoring, feedback information and staff training. The performance monitoring part of the PSR system involves a regular check on whether the service is achieving important, meaningful and relevant standards. It is important to note that the PSR does not directly measure the efficacy of the support plan in increasing quality of life or reducing frequency of occurrence of challenging behaviour, although standards that relate to client outcome can be included. Instead, the PSR monitors the extent to which the individual is receiving the intervention plan that has been devised for him or her.

LaVigna’s multi-element model was developed at the Institute for Applied Behavioral Analysis, USA, a highly specialised and well-resourced environment. Here, many case studies have shown that the model is successful at reducing challenging behaviour and increasing quality of life (e.g. LaVigna & Willis, 1995, 1996; Willis & LaVigna, 1997) making it an increasingly popular choice for Challenging Needs Services outside the USA. However, significant differences exist between British and American services, so that it should not be automatically assumed that the model will be as easily implemented in a British setting.

Firstly, in the USA the PSR system has been used alongside LaVigna’s multi-element model to monitor staff performance and give direct feedback in a way that attempts to galvanise staff to improve performance: great emphasis is placed on unmet goals as areas of “opportunity”, and some services publish PSR results to promote a sense of “friendly” competition within and between services (LaVigna et al, 1994). However, Emerson (1995) suggests that some of the methods of providing staff with feedback which have proved successful in the USA, such as public posting of feedback, or reinforcement of appropriate staff performance with lottery tickets (Reid, Parsons & Green, 1989a, 1989b; Cullen, 1992; Krantz, MacDuff & McClannahan, 1993) may prove unpopular with staff or procedurally unacceptable in the UK.
Secondly, research has shown that successful implementation of behavioural support programmes depends on transfer of skills and knowledge to direct care staff (Berg & Sasso, 1993) and in the USA, many training packages have been developed to teach care staff the necessary skills to implement behavioural support plans (e.g. Anderson, Albin, Mesaros, Dunlap, & Morelli-Robbins, 1993). However, in the UK managers often see caring as an unskilled job (Mansell, McGill & Emerson, 1994), and the majority of carers have only minimal specialised training (McGill & Bliss, 1993; Emerson, 1995; Forrest, Emerson, Cambridge & Mansell, 1995).

It has been shown that care staff without specialised training are more likely to stick to programmes if these result in quick reductions in challenging behaviour (McConnachie & Carr, 1993; Hastings, 1996) and are less motivated to try long-term strategies. Research suggests that care staff lack knowledge of behavioural principles (Emerson & Emerson, 1987), and that many intuitive intervention strategies used by staff are in conflict with behavioural approaches to challenging behaviour (Hill & Bruininks, 1984; Bruininks, Hill & Morrecau, 1988; Watts, Reed & Hastings, 1997). These findings suggest that British care staff will have differential motivation to implement parts of LaVigna’s multi-element model, and may find traditional behavioural approaches counter-intuitive, and therefore more difficult to apply.

Although LaVigna makes predictions about the speed of efficacy of different elements of the support plan (e.g. LaVigna & Willis, 1995), there are fewer predictions about the speed of implementation. It has been suggested that ecological manipulations may take time to implement if they involve attempts to change the style of interaction between staff and clients (Baker et al, 1998) or if they require very large changes to the environment (LaVigna & Willis, 1995). LaVigna & Willis (1995) also reflect that care staff may have “an aversion to using focussed support strategies” (pg. 12) or any “technical” behavioural method; an attitude which would have a negative effect on speed of intervention.

However, these suggestions are anecdotal, and in the USA little research has addressed how LaVigna’s multi-element model is implemented. This is despite recognition of the importance of levels of implementation: “No support plan,
regardless of its comprehensiveness and elegance, will produce the desired outcomes unless it is fully and consistently implemented” (LaVigna and Willis, 1995; pg 14). The model has multiple elements, all of which must be implemented to achieve reductions in challenging behaviour.

The present study aims to investigate how the multi-element model proposed by LaVigna is implemented in a British Challenging Needs service, with British care staff who do not have particular expertise in working within a behavioural model. Clinical Psychologists and other members of the Challenging Needs Service who create the implementation plans already use the PSR system to monitor overall levels of implementation. The study will audit the implementation of LaVigna’s multi-element model using a finer analysis of the PSR data, to provide the service with a check that it is actually delivering the model as intended, and to give information to guide efforts to improve implementation of different elements of the support plan.

**Hypotheses**

1. All elements of LaVigna’s model can be implemented by British care staff.

2. There will be differences between elements in speed of implementation, reflecting UK care staff motivation and the model’s predictions, as well as other variables such as availability of resources.
METHOD

Setting
LaVigna's multi-element model (e.g. LaVigna & Willis, 1995) is used by the Challenging Needs Service (CNS), Hastings and Rother NHS Trust, and the Periodic Service Review (PSR) system has been in use since 1995. For each client involved with Hastings and Rother CNS, a monthly meeting is held to review predetermined service standards relevant to the intervention process. This provides both a measure of the levels of service achievement and a chance to give direct feedback to care staff involved with each client.

Description of the data
For the eight clients currently being served by the Challenging Needs Service, all PSR forms to date were collected. Depending on the length of CNS involvement, clients had between 4 and 29 PSR forms, giving a total of 129 forms. A sample PSR form, together with operational definitions, is given in Appendix 2, and Table 1 shows the number of PSR forms for each client. Goals are different for each client, as support plans are tailored to the individual.

<table>
<thead>
<tr>
<th>CLIENT</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>NUMBER OF PSR FORMS</td>
<td>4</td>
<td>6</td>
<td>7</td>
<td>7</td>
<td>19</td>
<td>28</td>
<td>29</td>
<td>29</td>
</tr>
</tbody>
</table>

Data coding
The forms were coded by the stage of the intervention process, that is, for each client, the first available form was coded as "Time 1", the next as "Time 2" and so on. Clients at the same stage in the intervention process could then be compared, by looking at all available forms for a given time.

The goals from the forms were categorised according to their content into 6 main groups, reflecting the major parts of the intervention plan. These categories were:
Data Collection, Ecological Manipulations, Positive Programming, Reactive Strategies, Focussed Support and Staff Training. Table 2 shows the number of goals set in each category for each client.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>CLIENTS</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>TOTALS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>Data Collection</td>
<td>42</td>
<td>104</td>
<td>37</td>
<td>101</td>
<td>390</td>
<td>234</td>
<td>389</td>
<td>319</td>
<td>1616</td>
</tr>
<tr>
<td>Ecological</td>
<td>100</td>
<td>83</td>
<td>175</td>
<td>42</td>
<td>417</td>
<td>88</td>
<td>191</td>
<td>250</td>
<td>1346</td>
</tr>
<tr>
<td>Manipulations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>22</td>
<td>6</td>
<td>29</td>
<td>41</td>
<td>196</td>
<td>48</td>
<td>356</td>
<td>266</td>
<td>964</td>
</tr>
<tr>
<td>Programming</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Reactive</td>
<td>10</td>
<td>9</td>
<td>21</td>
<td>21</td>
<td>37</td>
<td>8</td>
<td>96</td>
<td>60</td>
<td>262</td>
</tr>
<tr>
<td>Strategies</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Focussed</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>36</td>
<td>218</td>
<td>67</td>
<td>72</td>
<td>0</td>
<td>393</td>
</tr>
<tr>
<td>Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff Training</td>
<td>0</td>
<td>33</td>
<td>0</td>
<td>30</td>
<td>90</td>
<td>39</td>
<td>217</td>
<td>300</td>
<td>709</td>
</tr>
<tr>
<td>TOTALS</td>
<td>174</td>
<td>235</td>
<td>262</td>
<td>271</td>
<td>1348</td>
<td>484</td>
<td>1321</td>
<td>1195</td>
<td>5290</td>
</tr>
</tbody>
</table>

Statistical Analysis

Data are in the form of percentages of goals achieved in a particular category at a particular time for each client. The data set is not independent because observations are made from the same clients at several different times, and performance at time T is partly determined by performance at time (T - 1). There are also several sources of variation within the data: there are different numbers of observations for each client, and the content and number of goals are different for each client. Given these limitations, it was not possible to make an analysis of the whole group of eight clients using statistical tests. The Mann test for positive trend was used to look at how individuals’ percentages changed over time (Leach, 1979), and it was also possible to use this test for the three clients with most observations.
At each period of time, there may be differences in the number of goals set for each client, so percentage of goals achieved were thought to be useful measures for comparing clients. Descriptive statistics were used to compare categories and to look at how scores change over time. The following were carried out:

1. Calculation of an overall percentage of goals achieved from all 129 forms in each category.
2. Scatter plots of the percentage of goals achieved at each time slot, where all eight clients are considered.
3. Examination of the range of scores for each category at the beginning and end of the intervention for the three clients for whom there were sufficiently large data sets.
4. Examination of time taken for all clients to achieve at least 85% of goals set (85% is the standard suggested by LaVigna et al, 1994).
RESULTS

Hypothesis one: All elements will be implemented

Mann tests for trend: Individual clients

42 tests for positive trend were carried out, and results are shown in Tables 6 - 11 in Appendix 3. As can be seen from these tables, 15 of the tests were significant at the 10% level, and only 5 of the 24 tests where there were 8 or less forms showed a significant positive trend. These results were probably due to the small sample sizes. Mann tests for positive trend were therefore re-run based on composite scores of the three clients who had been involved with the Challenging Needs Service for the longest time.

Mann tests for trend: 3 clients

For each category, the total percentage of goals achieved at each time was calculated from the sums of the goals achieved and goals set of client 5, client 7 and client 8. The first 19 times were then used for Mann tests, since all three clients had scores available during this time period. The data used for these Mann tests are displayed graphically in Appendix 4. The linear trend lines were plotted only for ease of comparison between categories, but as would be expected, there were steeper lines for those categories with significant positive trends. Results of the Mann tests are shown in Table 3. Only tests for positive trend for Ecological Manipulations, Positive Programming and Staff Support were significant, all at the 0.5% level.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>STATISTIC (S)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Collection</td>
<td>29</td>
<td>n.s.</td>
</tr>
<tr>
<td>Ecological Manipulations</td>
<td>105</td>
<td>0.005</td>
</tr>
<tr>
<td>Reactive Strategies</td>
<td>-2</td>
<td>n.s.</td>
</tr>
<tr>
<td>Positive Programming</td>
<td>132</td>
<td>0.005</td>
</tr>
<tr>
<td>Focussed Support</td>
<td>38</td>
<td>n.s.</td>
</tr>
<tr>
<td>Staff Training</td>
<td>86</td>
<td>0.005</td>
</tr>
</tbody>
</table>

1 Individuals’ scores for each of the six elements can be seen in the scatter plots in Appendix 5.
Hypothesis Two: There will be differences between elements in speed of implementation

Descriptive Statistics

Figure 1 shows the overall percentage of goals achieved for each category, where all eight clients’ goals are summed to give an overall percentage. Appendix 5 shows scatter plots for each category, showing the range of scores between clients and the change in scores over time. Table 4 shows the range of scores for each category at time 1 and time 19. Only clients 5, 7 and 8 were used, since all other clients had not been involved with the service for long enough to show patterns of change over time, as evident from individual Mann tests for trend.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>Range of scores at time 1</th>
<th>Range of scores at time 19</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Collection</td>
<td>75% - 100%</td>
<td>89% - 100%</td>
</tr>
<tr>
<td>Ecological Manipulations</td>
<td>63% - 67%</td>
<td>84% - 100%</td>
</tr>
<tr>
<td>Reactive Strategies</td>
<td>0% - 29%</td>
<td>18% - 86%</td>
</tr>
<tr>
<td>Positive Programming</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Focussed Support</td>
<td>64% - 100%</td>
<td>78% - 100%</td>
</tr>
<tr>
<td>Staff Training</td>
<td>0% - 100%</td>
<td>44% - 83%</td>
</tr>
</tbody>
</table>

Data were analysed to find the time taken before all three clients achieved 85% or more in order to compare the speed of implementation of different categories. Results are shown in Table 5. It should be noted that some clients were at earlier stages of the intervention process. At later times therefore, there were fewer data points.

<table>
<thead>
<tr>
<th>CATEGORY</th>
<th>Number of time slots</th>
</tr>
</thead>
<tbody>
<tr>
<td>Data Collection</td>
<td>8</td>
</tr>
<tr>
<td>Ecological Manipulations</td>
<td>11</td>
</tr>
<tr>
<td>Reactive Strategies</td>
<td>28</td>
</tr>
<tr>
<td>Positive Programming</td>
<td>10</td>
</tr>
<tr>
<td>Focussed Support</td>
<td>8</td>
</tr>
<tr>
<td>Staff Training</td>
<td>24</td>
</tr>
</tbody>
</table>
Figure 1: Bar chart to show the total percentage achieved of all goals set in each category.
DISCUSSION

Hypothesis One: All elements will be implemented
The hypothesis that staff would be able to implement all elements of LaVigna’s multi-element model was supported by the present study. Staff became more able over time to deliver all sections of the intervention plan. Although there was variation between clients, scatter plots of data clearly show that as time progresses scores move towards 100% in all categories. Clear positive trends were shown for Ecological Manipulations, Positive Programming and Staff Training. The lack of positive trends for Data Collection, Reactive Strategies and Focussed Support may be explained by ceiling effects: percentages were already high at the beginning of the implementation period, leaving less room for improvement. These ceiling effects would be expected from the model: Data collection forms part of the assessment process (e.g. LaVigna & Donnellan, 1986), so it would already be in place before the support plan and PSR recording begins. Focussed Support is designed as a short term strategy to be effective before other parts of the plan begin to effect levels of challenging behaviour (Willis & LaVigna, 1997) and so it may be presumed that Clinical Psychologists would give priority to this part of the plan at first. Reactive strategies are in part designed to ensure safety, so staff would be highly motivated to use them (e.g. Hastings 1996), and furthermore, staff may already have been using similar reactive strategies to manage challenging behaviour, making it easy to comply with the reactive strategies suggested by the support plan.

Hypothesis Two: There will be differences between elements in speed of implementation
As predicted, there was evidence to suggest that there was differential responding in implementation of categories across the model. Total percentages achieved of all goals set in each category varied between categories, and scatter plots and examination of the range of scores also showed meaningful differences between categories. Positive Programming, Staff Training and Ecological Manipulations took longer than other categories to reach standards of implementation that the authors of the PSR would predict would have an impact on challenging behaviour (LaVigna et al, 1994).
This pattern of results may be due to limited resources in the NHS, in terms of funds and staff shortages. Staff Training would be particularly affected by this, as both time and money would be needed to give staff specialised training to implement the support plan. The skills teaching often included in Positive Programming would probably be one area that required such specialised training, so could not be implemented until training had taken place. Some of the Ecological Manipulations may have required new equipment or materials to be provided, again this would be affected by limited resources. The pattern of results could also reflect staff motivation to comply with the support plan: Reactive Strategies and Focussed Support might be seen as offering more immediate results, and therefore seem more attractive than Staff Training, Positive Programming or Ecological Manipulations (e.g. Hastings, 1996).

Limitations
There are clear limitations to this study. Due to the facts that the data set was non-normative, non-independent and in small sample sizes, many statistical tests could not be used. It would be beneficial to repeat this study in two years when larger data sets will be available for every client. With larger sample sizes, it would be possible to determine whether significant differences exist between categories in the rates of change over time. However, Hastings Challenging Needs Service sees only the most severe cases of challenging needs, and the present sample represented all of the clients currently involved with the service.

Implications and Areas of Further Research
There is evidence then, that the Hastings Challenging Needs Service is delivering LaVigna's model successfully, and that British care staff are fully able to apply all elements of the support plan. As predicted however, the results suggest that in Britain, the multi-element support plan is not implemented uniformly. The Hastings Challenging Needs Service must focus on increasing staff compliance with Ecological Manipulations and Positive Programming, which took time to implement. Similarly, resources must be targeted at Staff Training, since other aspects of the plan are dependent on this aspect. The overall message for this particular service is that the model is implemented effectively, but improvements should be made in terms of the speed of implementation.
The present study looked only at measures of implementation of LaVigna's multi-element model, and not measures of its clinical efficacy. To fully support the assertion that LaVigna's model is suitable for use in Britain, as well as showing the model can be successfully implemented, it would be necessary to determine that the model delivers what it promises: significant reductions in challenging behaviour and improvements in clients' "Quality of Life" (LaVigna & Willis, 1995). This was beyond the scope of the present study, but is clearly an important part of service evaluation, since research suggests that interventions designed by specialist support services have only limited effectiveness in reducing clients' challenging behaviour and increasing "Quality of Life" (Lowe, Felce & Blackman, 1996). It would also be interesting to see if the efficacy of the support plan correlates with levels of implementation.

The predictions about implementation of the multi-element plan, that Ecological Manipulations and Focussed Support may take longer to implement (LaVigna & Willis, 1995; Baker et al, 1998) are anecdotally based, and were not fully supported by the present study. Studies of implementation of LaVigna's model in other countries would allow investigation of whether the differences observed in the present study reflect lack of resources and cultural attitudes, and therefore are particular to NHS settings, or are inherent to the model itself, and therefore are present in all settings.

Methods used in the present study suggest further uses for the PSR system. The PSR is a rich source of information, but is often used to assess the total levels of compliance at one moment in time, thus losing information. Here, data were subjected to finer analysis, using aggregated scores and patterns of change over time. The PSR proved to be a flexible tool for assessing quality of implementation. Its use would therefore be valuable in other health care settings to audit quality, in line with "Clinical Governance" (Department of Health, 1997), an important new initiative in the NHS, which calls for comprehensive programmes of quality improvement activity.
REFERENCES


Letter from Service Related Research Supervisor

TO WHOM IT MAY CONCERN

I would like to confirm that the research project 'The Use of the Periodic Service Review to Audit the Implementation of a Model of Support for People with Challenging Behaviour in a British Care Setting', was completed by Kate Danvers whilst she was on placement with the Community Learning Disability Service, Hastings & Rother NHS Trust. She presented the results of this project to the Challenging Needs Service team on 2nd September 1998.

Yours sincerely

Peter Baker
Consultant Clinical Psychologist
Manager Learning Disability Service
APPENDIX 1

The multi-element intervention plan proposed by LaVigna should include the following elements (Baker et al., 1998): Functional analysis and awareness of the antecedents and triggers for a particular challenging behaviour should suggest ecological manipulations of the person’s social or physical environment in order to reduce the chances of occurrence of the target behaviour. These should be simple changes that can be implemented quickly by staff.

Positive programming enables the acquisition of new skills. Functional analysis may identify functionally related or functionally equivalent skills, and there may also be a need for building general skills and coping skills. Skills building is a long term strategy that may take time to implement, since it requires staff training before skills teaching can begin, and can be complex and time consuming for staff to carry out.

Reactive strategies are those that relate to the management of the occurrence of challenging behaviour, including emergency strategies. It is expected that staff will be motivated to quickly implement these, since they may relate to immediate safety. Focussed support strategies are designed to produce rapid changes in the target behaviour, for example, differential reinforcement of other behaviour, differential reinforcement of alternative behaviours and other conditioning procedures. They are often more “traditional” behavioural strategies, which staff may find difficult to implement consistently, and may require specialised instruction or training (Anderson, Albin, Mesaros, Dunlap & Morelli-Robbins, 1993).

In order to implement the client’s individual support plan, it is recognised that there will be a need for staff training and development. Often it will take time to train all staff members, especially where resources are limited. Data collection is necessary to monitor the effects of the intervention plan, for example, counting the occurrences of the target behaviour, and the implementation of the plan, for example, noting the number of activities per week. Data collection forms part of the assessment package, so it is expected that this will be already implemented at the beginning of the intervention plan.
APPENDIX 2

Sample PSR Form

PERIODIC SERVICE REVIEW CHECKSHEET

<table>
<thead>
<tr>
<th>CATEGORY DESCRIPTION</th>
<th>Score</th>
<th>Total</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. BEHAVIOURAL DATA COLLECTION</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Data Summary</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Available</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>b) Current</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>2. Data Graphs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Available</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>b) Accurate</td>
<td>2</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>3. Keeping Track</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Available</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>b) Minimum target met</td>
<td>0</td>
<td>1</td>
<td>1 need 2</td>
</tr>
<tr>
<td><strong>B. ECOLOGICAL STRATEGIES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Activities</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) Age-appropriate &amp; functional</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>b) Programme compliance</td>
<td>1</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>2. Co-resident</td>
<td>0</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>3. Community Participation</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a) GCPLA</td>
<td>1</td>
<td>1</td>
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<td>b) Minimum target met</td>
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<td>1</td>
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<td>c) Maintaining social networks</td>
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<tr>
<td><strong>C. POSITIVE PROGRAMMING</strong></td>
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<tr>
<td>1. General Constructive Skills</td>
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<td>a) Protocols</td>
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<td></td>
</tr>
<tr>
<td>b) Data sheets</td>
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<td>1</td>
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Name: [Name]
Date of Review: 24th June 1996

A: 1/10 90%
B: 1/8 15%
### Sample PSR form (continued)

<table>
<thead>
<tr>
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<tbody>
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<td>a) Protocols</td>
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<td>a) Protocols</td>
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<td>b) Data sheets</td>
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</tr>
<tr>
<td>b) Data sheets</td>
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<table>
<thead>
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<th>D. REACTIVE STRATEGIES</th>
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<td>Protocols</td>
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</table>

<table>
<thead>
<tr>
<th>E. STAFF DEVELOPMENT</th>
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<tr>
<td>1. In-Service Training</td>
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<tr>
<td>a) Record</td>
<td>i) General Constructive Skills</td>
</tr>
<tr>
<td></td>
<td>ii) Functionally Equivalent Skills</td>
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<tr>
<td></td>
<td>iii) Functionally Related Skills</td>
</tr>
<tr>
<td></td>
<td>iv) Coping Skills</td>
</tr>
<tr>
<td>v) Reactive Strategies</td>
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<td>vi) Data Collection</td>
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<td>b) Staff participants</td>
<td>1 1</td>
</tr>
<tr>
<td>2. Programme Knowledge</td>
<td>4 4</td>
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</table>

Score = 28
Total = 40
PSR % = 70%
PSR Operational Definitions

PERIODIC SERVICE REVIEW
OPERATIONAL DEFINITIONS

A. DATA COLLECTION

1. Behaviour Recording Sheet

Based on a review of the behaviour recording sheets (Recording Sheet 1) for the period covering the previous 4 weeks, a "+' is given:

a) if recording sheets are available
b) for each target behaviour for which data have been entered by staff.

2. Data Summary

Based on a review of the Data Summary Sheets (Recording Sheets 2) for the previous 4 weeks, a "+' is given for each behaviour for which interval totals are:

a. current, i.e. have been recorded.
b. accurate, i.e. have been correctly transferred.

3. Data Graphs

Based on a review of the client graph from the time of the previous PSR, a "+' is given for each behaviour for which a data graph is

a) current, to within one week
b) accurate, i.e. data has been accurately transferred onto the graph.
c) displayed in a place accessible to all team members.
d) showing a downward trend in the target behaviour(s) i.e. there are more data points below base-line than above.

4. Reliability Checks

Based on a review of observational reliability records for the previous month, a "+' is recorded if

a) an observational reliability check has been carried out within the previous two months
b) reliability was at least 85%

5. GCPLA

Based on a review of the CNS file, '+' is given if a GCPLA:

a) has been completed during the previous six months.
PSR Operational Definitions (continued)

b) scores have been summarised accurately.
c) scores have been accurately transferred onto a graph.

6. Keeping Track

Based on a review of the keeping track records, a ‘+’ is given if
a) a completed record of activity exists for the previous seven days.
b) totals since the last PSR have been accurately transferred.
c) totals since the last PSR have been graphed.
d) weekly target scores have been met since the last PSR.

7. MTS

Based on a review of MTS, a ‘+’ is given if
a) data has been collected within the last year.
b) engagement levels and staff: client contact have been summarised.
c) engagement levels and staff: client contact have been graphed.
d) engagement levels and staff: client contact standards have been met.

8. Reinforcement Inventory

A ‘+’ is given if the reinforcement inventory:
a) has been completed within the last year.

B. ECOLOGICAL STRATEGIES

1. Life Plan/IP system

Based on a review of Life Planning/IP records, a ‘+’ is scored if:
a) a Life Plan/IP meeting has occurred in the last six months.
b) a list of current goals is available.
c) goals reflect age-appropriate and functional activities.
d) goals are clearly stated.

2. Support Plan

Based on a review of records, a ‘+’ is scored if a current (i.e. dated within the previous six months) Support Plan is available.

3. Activity Schedule

Based on a review of activity records, a ‘+’ is scored if:
PSR Operational Definitions (continued)

a) a current (i.e. dated within the previous six months) activity schedule is available.
b) the schedule is complete i.e. all time slots are accounted for.
c) activities reflect current Life Plan/IP goals.
d) the schedule includes regular access to community based activities.
e) activities are age-appropriate and functional.

4. Social Networks

Based on a review of Keeping Track records for the previous four weeks, a ‘+’ is scored if Nina has visited, or has been visited by, people outside her current service, for social purposes, on at least two occasions.

5. Positive Interactional Profile

Based on a review of records, and observation at the time of the PSR, a ‘+’ is scored if:
a) a Positive Interactional Profile is available.
b) the PIP is current i.e. dated within the previous six months.

6. Staff Meetings

Based on an inspection of the most recent staff meeting minutes, a ‘+’ is scored if they indicate that Nina’s service has been discussed within the previous three weeks.

C. POSITIVE PROGRAMMING

1. General Skills Training

Based on a review of records, a ‘+’ is scored:
a) for each skills training protocol which is available.
b) if skills training is related to age-appropriate and functional activity.
c) for each set of data sheets, for the above, which are available.

2. Functionally Related Skills

Based on a review of records, a ‘+’ is scored:
a) for each skills training protocol which is available.
b) if skills training is related to age-appropriate and functional activity.
c) for each set of data sheets, for the above, which are available.

3. Functionally Equivalent Skills

Based on a review of records, a ‘+’ is scored:
a) for each skills training protocol which is available.
PSR Operational Definitions (continued)

b) if skills training is related to age-appropriate and functional activity.
c) for each set of data sheets, for the above, which are available.

4. Coping Skills

Based on a review of records, a '+' is scored:

a) for each skills training protocol which is available.
b) if skills training is related to age-appropriate and functional activity.
c) for each set of data sheets, for the above, which is available.

D. REACTIVE STRATEGIES

1. Protocols

Based on a review of reactive strategy protocols and incident records and observation at the time of the PSR, a '+' is scored:

a) for each protocol which is available.
b) if protocols are current i.e. dated within the previous six months.
c) if the reactive strategies are seen to be correctly implemented as per the protocols.
d) if the most recent incident record indicates that reactive strategies were correctly implemented.

E. CNS SUPPORT

1. Behavioural Analysis and Intervention Plan

A '+' is given if the report has been completed and is available on file.

2. Progress Reports

A '+' is given if a progress report is:

a) available on file.
b) has been completed within the last six months.

3. PSR

A '+' is given if the PSR

a) score is available on file
b) meeting has been conducted within the last six weeks
c) score recorded has been calculated correctly.
d) score has been accurately transferred onto a graph.
e) graph is displayed in a place accessible to all team members.
4. Re-formulation Meeting

A '+' is given if a re-formulation meeting has occurred within the last six months.

F. STAFF DEVELOPMENT

1. Training

Based on a review of staff training records and staff rota, and observation at the time of the PSR, a '+' is scored:

a) if a training event related to N’s service has occurred within the last six months.

b) for each staff member on duty at the time of the PSR who attended the above training event.

2. Programme Knowledge

Based on an interview with an individual with responsibilities for intervention (e.g. a staff member, client relative, volunteer or significant other) a '+' is scored if they demonstrate knowledge and competence in key areas of the intervention.

G. LENGTH OF PSR MEETING

A '+' is scored if the PSR meeting is completed within one and a half hours.
APPENDIX 3

Results of Tests for Positive Trend

Table 6: Results of Mann test for positive trend for clients’ Data Collection scores.

<table>
<thead>
<tr>
<th>CLIENT</th>
<th>MANN STATISTIC (S)</th>
<th>p</th>
<th>NUMBER OF FORMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>4</td>
<td>n.s.</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td>0.1</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>12</td>
<td>0.1</td>
<td>7</td>
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<tr>
<td>4</td>
<td>11</td>
<td>0.1</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>19</td>
<td>n.s.</td>
<td>19</td>
</tr>
<tr>
<td>6</td>
<td>-10</td>
<td>n.s.</td>
<td>28</td>
</tr>
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<td>7</td>
<td>152</td>
<td>0.005</td>
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</tr>
<tr>
<td>8</td>
<td>-83</td>
<td>n.s.</td>
<td>29</td>
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Table 7: Results of Mann test for positive trend for clients’ Ecological Manipulation scores.

<table>
<thead>
<tr>
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<th>MANN STATISTIC (S)</th>
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<th>NUMBER OF FORMS</th>
</tr>
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<tr>
<td>1</td>
<td>4</td>
<td>n.s.</td>
<td>4</td>
</tr>
<tr>
<td>2</td>
<td>-1</td>
<td>n.s.</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>n.s.</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>16</td>
<td>0.1</td>
<td>7</td>
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<td>74</td>
<td>0.01</td>
<td>19</td>
</tr>
<tr>
<td>6</td>
<td>10</td>
<td>n.s.</td>
<td>8</td>
</tr>
<tr>
<td>7</td>
<td>57</td>
<td>n.s.</td>
<td>29</td>
</tr>
<tr>
<td>8</td>
<td>179</td>
<td>0.005</td>
<td>29</td>
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Table 8: Results of Mann test for positive trend for clients' Positive Programming scores.

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<th>MANN STATISTIC (S)</th>
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<th>NUMBER OF FORMS</th>
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</tr>
<tr>
<td>2</td>
<td>0</td>
<td>n.s.</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>17</td>
<td>0.1</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>10</td>
<td>n.s.</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>106</td>
<td>0.005</td>
<td>19</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>n.s.</td>
<td>8</td>
</tr>
<tr>
<td>7</td>
<td>239</td>
<td>0.005</td>
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<td>323</td>
<td>0.005</td>
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Table 9: Results of Mann test for positive trend for clients' Reactive Strategies scores.

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<td>1</td>
<td>n.s.</td>
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</tr>
<tr>
<td>2</td>
<td>6</td>
<td>n.s.</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>-4</td>
<td>n.s.</td>
<td>7</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
<td>n.s.</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
<td>n.s.</td>
<td>19</td>
</tr>
<tr>
<td>6</td>
<td>0</td>
<td>n.s.</td>
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<tr>
<td>7</td>
<td>72</td>
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<td>8</td>
<td>0</td>
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Table 10: Results of Mann test for positive trend for clients' Focussed Support scores.

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<td></td>
</tr>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>9</td>
<td>n.s.</td>
<td>7</td>
</tr>
<tr>
<td>5</td>
<td>40</td>
<td>0.1</td>
<td>19</td>
</tr>
<tr>
<td>6</td>
<td>3</td>
<td>n.s.</td>
<td>8</td>
</tr>
<tr>
<td>7</td>
<td>-16</td>
<td>n.s.</td>
<td>29</td>
</tr>
<tr>
<td>8</td>
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Table 11: Results of Mann test for positive trend for clients' Staff Training scores.

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<th>NUMBER OF FORMS</th>
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<td></td>
</tr>
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<td>-2</td>
<td>n.s.</td>
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</tr>
<tr>
<td>3</td>
<td></td>
<td></td>
<td></td>
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<td>8</td>
<td>184</td>
<td>0.005</td>
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</table>
APPENDIX 4

Data used for Mann Tests for Positive Trend for Three Clients.
Appendix 4 (continued)
Appendix 4 (continued)
APPENDIX 5

Scatter Plots for Each Category Showing All Eight Clients’ Scores
Appendix 5 (continued)
Appendix 5 (continued)
Appendix 5 (continued)
Appendix 5 (continued)
The contribution of attitudes and cognitions to the occurrence of eating disorders and disordered eating behaviour in adolescents and children.
Introduction

Recent research has reported cases of anorexia nervosa presenting as early as eight years (Jacobs & Isaacs, 1986; Fosson, Knibbs, Bryant-Waugh & Lask, 1987; Higgs, Goodyer & Birch, 1989; Gowers, Crips, Joughin & Bhat, 1991), and shown that disordered eating behaviour and distorted attitudes and cognitions about food, eating, body shape and weight occur in children as young as seven or eight years old (Maloney, McGuire & Daniels, 1988; Edlund, Halvarsson & Sjoden, 1996; Rolland, Farnill & Griffiths, 1997). Childhood onset eating disorders include anorexia nervosa, bulimia nervosa, selective eating (Bryant-Waugh & Kaminski, 1993), food-avoidance emotional disorder (Higgs et al, 1989) and pervasive refusal syndrome (Lask, Britten, Kroll, Magagna & Tranter, 1991), and have been defined as “disorder(s) of childhood in which there is an excessive preoccupation with weight or shape, and/or food intake, accompanied by grossly inadequate, irregular or chaotic food intake” (pg 191, Bryant-Waugh & Lask, 1995). There are important health implications of chaotic food intake and dieting at a young age. Dieting behaviour is a risk factor for the development of eating disorders: in a sample of 15 year old schoolgirls, the risk of dieters developing an eating disorder was eight times that of non-dieters (Patton, Johnson-Sabine, Wood, Mann & Wakeling, 1990). When children diet during their crucial growth period, complications can include short stature, delayed puberty (Pugliese, Lifschitz, Grad, Fort & Marks-Katz, 1983), retardation of mental development and reproductive problems (Mallick, 1983).

Eating disorders are becoming increasingly common amongst adults (Plehn, 1990). Prevalence studies show that 0.2% - 1% of adult women meet the diagnostic criteria for anorexia nervosa, and 1.9% - 5.1% meet the criteria for bulimia nervosa (Johnson-Sabine, Wood, Patton, Mann & Wakeling, 1988; Yates, 1989; Heatherton, Nichols, Mahamedi & Keel, 1995). There is disagreement over incidence and prevalence rates for childhood onset eating disorders due to differences in diagnostic criteria, and few epidemiological studies have focussed on child populations. However, in adolescent females, the prevalence of anorexia nervosa is thought to be about 0.1% - 0.2% (Bentovim & Morton, 1990; Whitaker, Johnson, Shaffer, Rapoport & Kalikow, 1990), with accumulated prevalence rates for girls to the age of sixteen of 0.7% (Rastam,
Gillberg & Garton, 1989). Bulimia nervosa appears to be rare in children below fourteen years of age (Lask & Bryant-Waugh, 1992). Eating disorders tend to be gender-biased in adults, but less so in children. In the adult age group only 5% - 10% of those with anorexia nervosa are male, whereas in the under-sixteen age group up to 20% - 30% of cases are male (Lask & Bryant-Waugh, 1992). In Western societies, it is common for females to express concerns about body-shape and weight, even when they do not meet the formal criteria for an eating disorder. Estimates show that 3% - 5% of female adolescents and young women suffer with significant symptoms of an eating disorder (Szmulker & Patton, 1995). In non-clinical samples of women, 46% - 80% were dissatisfied with their weight (Davies & Furnham, 1986; Greenfeld, Yuinlan, Harding, Glass & Bliss, 1987), 70% - 80% wished to lose weight (Heatherton et al, 1995) and 26% - 63% were preoccupied with dieting (Davies & Furnham, 1986; Greenfeld et al, 1987; Heatherton et al, 1995).

The presence of disordered eating attitudes has long been recognised as a characteristic psychological feature of eating disorders such as anorexia nervosa and bulimia nervosa (Garner, Olmstead, Bohr & Garfinkel, 1982). For example, DSM-IV (American Psychiatric Association, 1994) criteria for the diagnosis of anorexia nervosa include “undue influence of body shape and weight on self-evaluation”, and “intense fear of gaining weight or becoming fat”. As has been shown above, however, it is common for adolescents and young women, who do not meet clinical criteria for an eating disorder, to experience “sub-clinical” levels of eating disorder symptoms, and upsetting thoughts about eating, body-shape and weight. This has lead some researchers (e.g. Fries, 1974; Nylander, 1971; Johnson-Sabine et al; 1988) to suggest there is a continuum of maladaptive eating patterns, ranging from common concerns about body-shape and weight to full blown, clinical eating disorders. The continuum hypothesis of eating disorders recognises “partial eating disorders” (e.g. Button & Whitehouse, 1981; Thompson & Schwartz, 1982; Mann, Wakeling, Wood, Monck, Dobbs & Szmulker, 1983; Garner, Olmstead, Polivy & Garfinkel, 1984; Drewnowski, Yee, Kurth & Krahn, 1994) and suggests that partial eating disorders, or even common concerns about body-shape and weight, may develop into eating disorders if other risk factors are also present (Patton, 1988). As well as being symptoms,
disordered attitudes to food and body-shape may therefore be present in the early stages of an eating disorder (Slade, 1995) and so help to identify individuals at risk.

The focus of this paper is to explore the occurrence and meaning of cognitions about food, body-shape and weight in children and adolescents. Cognitions (including attitudes, assumptions and beliefs) have been shown to be important in the understanding of disordered eating patterns in adults, but less is known about their occurrence in children and adolescents. The paper will begin with a broad consideration of the psychological theories that link cognitions to eating disorders. It will then move on to consider the evidence supporting such theories in both adult and child populations, and the evidence that eating attitudes occur in children and may predispose towards disordered eating behaviours.

**Cognitive Theories of Eating Disorders**

Whilst there are many different theoretical approaches to the study of eating disorders, only cognitive theories view cognitions as central to eating disorders, rather than just as symptoms of the disorders. Cognitive theories argue that an individual's interpretation of events and experiences can determine his or her mood and behaviour. Psychiatric disorders are thought to be characterised by a distorted or dysfunctional way of thinking about the world, which must change if therapeutic intervention is to be effective (e.g. Fairburn & Cooper, 1989). Cooper (1997) argues that there have been two main cognitive theories of eating disorders, Garner and Bemis's (1982) theory of anorexia nervosa and Fairburn, Cooper and Cooper's (1986) theory of bulimia nervosa. The theories have much in common with each other, and have been extended and adapted by other cognitive theorists (e.g. Guidano & Liotti, 1983; Vitousek & Hollon, 1990).

Garner and Bemis (1982) base their theory on Beck's model of depression (Beck, 1976), and suggest that in anorexia nervosa, the central belief is "I must become thin". Anorexic patients believe that thinness is of great worth; they have many assumptions that support the desirability of weight loss and dieting (Cooper, 1997), and show
characteristic cognitive distortions in the processing and interpretation of events, such as all-or-nothing thinking (e.g. "If I gain one pound, I'll go on and gain a hundred pounds.") pg. 187, Garner & Bemis, 1982).

The theory of Fairburn and colleagues (1986) is adapted from that of Garner and Bemis (1982). Like anorexic patients, bulimic patients are thought to define their self-worth in terms of body shape and weight, to value self-control, and to view fatness very negatively. Bulimic patients show cognitive distortions including all-or-nothing thinking, overgeneralization (e.g. "When I used to eat carbohydrates I was fat; therefore, I must avoid them now so I won't become obese." Pg. 187, Garner & Bemis, 1982) and errors of attribution (such as attributing to foods "fattening" or "non-fattening" powers, Cooper, 1997).

Later cognitive theorists have generally focussed on anorexia nervosa. Guidano and Liotti (1983) suggest that negative beliefs about the self are central to anorexia nervosa. It has been suggested that there are three central disturbances in anorexia nervosa (Bruch, 1973): a disturbance of body-image concept, a disturbance of perception and interpretation of internal states (e.g. hunger or tiredness), and a sense of ineffectiveness that pervades thought and activity. Guidano and Liotti suggest that all three disturbances could be a result of problems in cognitive structures relating to personal identity, which arise due to a failure in early years to develop autonomy, individuality and self-expression. Wolff and Serpell (1998) also suggest that beliefs and biases about food and weight develop in the context of deep-seated negative beliefs about the self, and it is the negative self-beliefs that are central, rather than the belief "I must become thin". Similarly, in their schema theory approach, Vitousek and Hollon (1990) emphasize the role of low self-esteem in the maintenance of eating disorders. They suggest that people with eating disorders have negative self-schemata as well as schemata involving distorted beliefs about food and weight. People with eating disorders differ from others in that they show systematic information processing biases leading to selective attention, processing and remembering of schemata-supportive information and undermining of schema-inconsistent evidence, thus helping to maintain the eating disorder (Vitousek & Hollon, 1990).
In a recent paper, Fairburn, Shafran & Cooper (1999) reviewed cognitive theories of anorexia nervosa, and suggested that control, rather than shape and weight concerns, is crucial to the disorder. They suggested that people with anorexia are characterised by an extreme need for control and low self-worth, so they attempt to gain control in a variety of different areas of their lives in order to increase their sense of worthiness. They “choose” to attempt to control their eating when initial success reinforces the restriction of food intake, and successful restriction becomes synonymous with a sense of being in control, and hence, self-worth (Fairburn et al, 1999). Interestingly, Fairburn and colleagues suggested that in certain groups (such as young children or women in countries that do not idealize a slim body figure) eating disorders might be present without the characteristic concerns about weight and shape.

Despite differences in what is thought to be the central feature of eating disorders, the cognitive theories described above all agree that there are two types of cognitions important to eating disorders: negative cognitions about the self, and frequent, distorted cognitions concerned with eating, body-shape and weight. The evidence for cognitive theories is reviewed below.

Evidence for the Role of Eating and Weight-related Cognitions in Eating Disorders

Evidence that disordered cognitions about eating and weight exist in people with eating disorders

If cognitive theories are to be supported, it must first be shown that people with eating disorders do actually experience distorted cognitions about eating and weight. Research suggests that in the adult population this is the case. Questionnaire studies (Phelan, 1987; Clark, Feldman & Channon, 1989) and experimental methods such as thought sampling (Zotter & Crowther, 1991; Cooper & Fairburn, 1992) have shown that compared to female dieters and non-dieters, adult patients with eating disorders do experience more negative weight-related cognitions. They also score more highly on questionnaires designed to measure the underlying assumptions concerning eating, weight and shape, which are thought to characterize eating disorders (Scanlon,
Ollendik & Bayer, 1986 (quoted in Cooper, 1997); Powers, Schulman, Gleghorn & Prange, 1987; Mizes, 1992). One study used a psychiatric control group (Mizes, 1992), suggesting that food and weight related assumptions are specific to eating disorders. Furthermore, in a review of current research using cognitive processing paradigms, Vitousek (1996) concluded that despite methodological problems, empirical studies to date tend to provide support for the role of information processing biases in the maintenance of eating disorders, by the support of schema-consistent information.

In the child population, no studies have measured eating and weight-related cognitions in children with diagnosed eating disorders. Most studies have focussed on verifying the existence of such cognitions in non-clinical samples. Prevalence studies have generally used self-report measures to assess the degree of disordered eating attitudes and dissatisfaction with body-shape, and have found that it is common for children to express concerns about their weight and body-shape (e.g. Cooper & Goodyer, 1997). The Children's Eating Attitudes Test (ChEAT, Maloney et al, 1988) is the most widely used self-report measure for identifying disordered eating attitudes in prepubertal children. It consists of simplified Eating Attitudes Test (EAT-26) items (Garner & Garfinkel, 1979; Garner et al, 1982) and is designed for use with eight to thirteen year-old children (Maloney et al, 1988). 7% of eight to thirteen year-olds scored above the suggested cut-off of 20 (Maloney et al, 1988), which is comparable with the adult version (Garner et al, 1982). When interviewed, although they do not meet formal criteria for an eating disorder, high-scoring adults are identified as experiencing eating patterns that interfere with normal psychological and social functioning (Button & Whitehouse, 1981; Garner & Garfinkel, 1979, 1980), and high-scoring children might be expected to be similarly affected, although, to date, no research has looked at this. Other researchers have found that a larger percentage of children score above the cut-off point, for example, 28% of eight year-olds (Rolland et al, 1997). Sasson, Lewin & Roth (1995) found that 8.8% of children in 3rd-6th grade and 18.9% of children in 8th-11th grade scored above the cut-off point on the ChEAT.
Attempts to assess cognitions about shape and weight have been made by asking children to rate their actual figure and ideal figure from a series of silhouettes (Cohn, Adler, Irwin, Millstein, Kleges & Stone, 1987; Williamson, Davis, Bennett, Goreczny, & Gleaves, 1989; Collins, 1991; Veron-Guidry & Williamson, 1996; Sands, Tricker, Sherman, Armatas & Maschette, 1997), and the discrepancy between the two figures is taken as a measure of dissatisfaction with the body (Williamson, Gleaves, Watkins & Schlundt, 1993). Such studies have shown that dissatisfaction with body-image is also common amongst children aged eight and above (e.g. Williamson et al, 1993).

Eating- and weight-related cognitions are clearly present at high levels in adults with eating disorders. Although in the non-clinical population of children eating and weight related cognitions are common, research has yet to show that children with eating disorders experience higher levels of such cognitions than children without eating disorders.

Evidence showing that eating disorders are more common in populations where disordered cognitions are more common

Indirect support for a relationship between cognitions and eating disorders comes from studies of groups in which weight- and eating-related cognitions are likely to be highly salient. For example, there is evidence to suggest that adolescents and children who are semi-professional or professional dancers or models are at increased risk of eating disorders. Approximately 4-6% of adult models and ballet dancers develop eating disorders (Farmer, Treasure & Szmukler, 1986), and in adolescent dancers aged between fourteen and eighteen levels of eating disorder symptoms are higher than in non-dancers of the same age (Brooks-Gun, Burrow & Warren, 1988; Garner & Garfinkel, 1980). Only one study has explored eating disorders in dancers under fourteen years of age (Garner, Garfinkel, Rockert & Olmstead, 1987) and eating attitudes were not measured in the study. A group of 55 eleven to fourteen year-olds receiving professional ballet training were followed up after two years, at which time 20% were found to have anorexia nervosa, and another 9% had another form of eating disorder. It is possible that the same patterns may hold for younger dancers, and children who model (Bryant-Waugh, 1993).
People with Insulin Dependent Diabetes Mellitus (IDDM) are another group for whom eating- and weight-related cognitions may be salient, and it appears that IDDM is a risk factor for the development of disordered eating attitudes and eating disorders. Management of IDDM involves sticking to a strict diet, avoiding certain foods (e.g. high-sugar foods) and the experience of intense hunger if blood-sugar levels are low. Adolescents with unstable diabetes have been described as “obsessed” with body-weight (Gale & Tattershall, 1979), and prevalence studies show that young female adults with diabetes are at increased risk of developing an eating disorder, particularly bulimia (Powers, Malone, Coovert & Schulman, 1990; Rodin, Craven, Littlefield, Murray & Daneman, 1991; Rodin & Daneman, 1992; Wing, Nowalk, Marcus, Koeske & Finegold, 1986). In the first year of treatment for IDDM, adult women, but not adult men, show increased body-dissatisfaction (Steel, Lloyd, Young & MacIntyre 1990), as measured by the EAT (Garner & Garfinkel, 1979) and the Eating Disorders Inventory (EDI, Garner, 1991).

Some studies focus on teenagers and young adults with IDDM (Kahn & Montgomery, 1996). Forty-eight thirteen to twenty year-old females with IDDM completed the EDI (Garner, 1991) and the Dutch Eating Behaviour Questionnaire (van Strien, Fritjers, Bergers & Defares, 1986), and scores were compared to non-diabetic age-matched controls. The diabetic sample was found to have significantly higher EDI scores than controls, and to score within the pathological range on the Drive for Thinness and Body Dissatisfaction subscales of the EDI. Furthermore, some of the diabetic sample admitted deliberately omitting their insulin in order to lose calories, and these individuals had elevated bulimia scores and increased sensitivity to external eating cues, making them particularly at risk of developing an eating disorder (Kahn & Montgomery, 1996).

In a sample of teenage girls (Vila, Robert, Nollet-Clemoncon, Vera, Crosnier, Rault, Jos & Mouren-Simeoni; 1995), obese girls with IDDM had more eating problems and emotional problems than both obese and non-obese girls without IDDM, and non-obese girls with IDDM. Non-obese girls with IDDM had higher rates of “eating disorders not otherwise specified” (DSM-III-R, American Psychiatric Association,
1987) than non-obese girls without IDDM. There are no available studies exploring the eating attitudes of children under 13 with IDDM, but it is likely that there is a similar association between IDDM and raised concern about weight, shape and food in this age group.

Available evidence from studies of adults and teenagers does therefore support the assertion that members of groups for whom eating-related cognitions are salient are at high risk for the development of eating disorders, lending support to the cognitive model. As yet, there is no evidence available to show whether the same pattern holds for children under the age of thirteen.

Evidence showing an association between distorted cognitions and disordered eating behaviour
As has been stated, in the adult population concerns about body-shape, weight and dieting are common. Adults, who can determine their own food intake, might be expected to diet if they are unsatisfied with their body-shape or weight. The same is true for girls in their late teens: high EAT-26 scores are significantly and positively correlated with the number of diets in the last year (Koslowsky, Scheinberg, Bleich, Mark, Apter, Danon & Solomon, 1992).

Children generally have less control over their choice of food, and some argue that although children do have disordered eating attitudes, these do not translate into dieting behaviour (e.g. Cooper & Goodyer, 1997). Research suggests however, that like adults and adolescents, young children do engage in dieting behaviour, and disordered eating attitudes and body-image are associated with this behaviour. Smolak & Levine (1994) asked over 300 eleven to thirteen year-old girls to complete the ChEAT, to estimate how often within the past six months they had used various weight loss measures, and to rate their ideal and current figures using silhouettes to give a measure of body-dissatisfaction. ChEAT scores were significantly correlated with weight management behaviours and body-dissatisfaction. Hill & Robinson (1991) measured dieting concerns in nine and ten year-old girls using the Dutch Eating Behaviour Questionnaire, and compared eight high-scorers to eight low-scorers on their food intake over a one-week period. T-tests showed that all diets were
nutritionally adequate, but the high-scorers' diets were significantly lower in calories than the low-scorers' diets. This study used an extremely small sample size, but it is possible that with larger sample sizes, those children who were found to have significant dieting concerns would also be found to have a nutritionally inadequate diet.

Body-dissatisfaction is also related to dieting behaviour in young girls (Hill, Oliver & Rogers, 1992). Girls aged eight to ten and fourteen to fifteen years were given the Dutch Eating Behaviour Questionnaire to measure dieting behaviour (restraint), and three measures of body satisfaction: a silhouette measure, a rating scale (Mendelson & White, 1982) and the Body-Cathexis Scale (Minzt & Betz, 1986) which requires participants to rate their satisfaction with each of 15 body parts. Girls were then divided into dieting and non-dieting groups based on their restraint scores. The overall measure of body-esteem was significantly lower in the two groups who were dieting, and eight to ten year-olds who were not on diets had the highest body esteem of all the participants (Hill et al, 1992). The girls who were on diets were significantly more likely than those girls not on diets to choose an ideal silhouette that was slimmer than their current figure, despite the fact that 40% of the dieting fourteen and fifteen year-olds and 50% of the dieting eight to ten year-olds were within average weight limits. These results suggest that there is an association between dieting behaviour and body dissatisfaction, which is not necessarily dependent on girls being overweight. This study focuses on body-esteem rather than more general self-esteem or eating concerns, and does not show whether or not body-dissatisfaction was the direct cause of dieting behaviour, or give clues about the causes of body-dissatisfaction. It is likely that some girls who are overweight may develop poor body-image due to teasing or not matching up to the thin ideal, leading to dieting, but many girls in the study who were dieting were within normal weight limits. These girls may have developed body-dissatisfaction for other reasons, leading to dieting, or may have begun dieting for other reasons, such as peer pressure or fashion. Body-dissatisfaction for these girls might in fact be caused by dieting behaviour, as girls struggle unsuccessfully to change their weight and shape.
A community survey of 1063 eleven to sixteen year-old girls (Cooper & Goodyer, 1997) used the Body Shape Questionnaire (BSQ, Cooper, Taylor, Cooper et al, 1987) as a screening tool, followed by semi-structured interviews of a smaller sample (n=368) using the Eating Disorders Examination (Cooper & Fairburn, 1987; Fairburn & Cooper, 1993). 18.9% of the total sample showed significant concerns about their weight and shape, with a rise in prevalence of concerns after the age of fourteen. This is in contrast to the results of Hill et al (1992), who found that eight to ten year-old girls showed similar levels of dieting and body dissatisfaction to fourteen and fifteen year-old girls. In addition, Cooper & Goodyer (1997) found that for some girls aged fourteen and over (but none under fourteen), weight and shape concerns were associated with levels of disturbance in eating habits and ideation which were at a similar level to a group of adult patients with bulimia nervosa. It is likely that girls younger than fourteen also show an association between weight and shape concerns and lower severity dieting behaviours, since dieting motivation has been found to be at a similar level in twelve year-old girls and sixteen year-old girls (Wardle & Beales, 1986).

Taken together then, it seems that in young children as well as in adults, there is an association between disordered eating attitudes and the tendency or wish to diet. In younger children, it is likely that actual dieting behaviour is mediated not only by beliefs about body shape and weight, but also the level of parental involvement in food choice and meal preparation. Parental beliefs about dieting and weight loss may therefore be expected to influence the dieting patterns of young children both by increasing their disordered eating attitudes and by increasing the availability and acceptability of dieting behaviours in the family context. Research has supported these hypotheses in a sample of Polish adolescent girls (Wlodarczyk-Bisaga & Dolan, 1996). Girls who scored above the cut-off point on the EAT-26 were more likely to diet than girls below the cut-off, and also more likely to have a dieting mother or other close relative.

Evidence from prospective studies
Prospective studies have shown that in adolescents, eating attitudes are predictive of later disordered eating behaviour. Wood, Waller & Gowers (1994) found that thirteen
to fifteen year-old girls' EAT scores predicted the presence of partial eating disorders two years later. Low self-esteem at baseline predicted EAT scores but not partial eating disorders two years later. Other investigators have also suggested that the EAT is a reliable screening tool for adolescents at risk of developing eating disorders (Mann et al, 1983; Miller, Veheegge, Miller & Pumariega, 1999). No prospective studies have been carried out with the pre-teenage age group.

Evidence for the causal role of cognitions in eating disorders
If cognitions are causal in the onset and maintenance of eating disorders, manipulation of cognitions both experimentally and during the course of psychological treatment should result in changes in eating disorder symptomatology. This seems to be the case in the adult population. For bulimia nervosa, Cognitive Behaviour Therapy (CBT), part of which focuses on changing eating- and weight-related cognitions, is now the treatment of choice (Royal College of Psychiatrists, 1992; Wilson & Fairburn, 1993). In controlled treatment trials it has been shown to be effective at reducing symptomatology (Freeman, Barry, Dunkeld-Turnbull & Henderson, 1988; Agras, Schneider, Arnow, Raeburn & Telch, 1989) and, in the short term at least, CBT is superior to every other treatment included in the trials (Wilson & Fairburn, 1993; Fairburn et al, 1999). No outcome studies have yet focussed on anorexia nervosa (Cooper, 1997), and although it is widely used, the efficacy of CBT for anorexia has yet to be proven (Vitousek, 1996).

Fairburn, Peveler, Jones, Hope & Doll (1993) found that following CBT for bulimia nervosa, the residual level of distorted cognitions was predictive of bulimic symptoms at twelve month follow-up. Other investigators have found lower relapse rates for bulimia nervosa after CBT than after other treatments (e.g. Thackwray, Smith, Bodfish & Myers, 1993). The causal role of cognitions is also supported by experimental studies in which assumptions about eating and weight are activated (Cooper, Clark & Fairburn, 1993), causing a change in eating behaviour. Compared to patient controls, patients with bulimia nervosa whose assumptions were activated made more negative self-statements and ate less in a taste test (Cooper et al, 1993).
No studies have reported the efficacy of CBT for children with eating disorders. Similarly, there are few experimental studies focusing on child populations, and where there are such studies, dieting behaviour rather than eating attitudes has often been the focus. One study (Hill, Rogers & Blundell, 1989) investigated whether in young children, dieting behaviour can actually result in overeating, when the dieter's restraint breaks down, as is the case in adults. Hill and colleagues (1989) first asked girls aged twelve and fourteen to complete a restraint questionnaire, modified from the Stunkard & Messick three-factor eating inventory (Stunkard, 1981). Restraint scores were highly correlated with weight for both age groups. In each of the age groups, the twelve highest scorers and the twelve lowest scorers on the restraint questionnaire were then asked to carry out a “taste test” of five types of biscuits, during which they could eat as many biscuits as necessary to rate the taste. Before the taste test, the experimental group were exposed for three minutes to pictures of food and instructed to imagine the taste of the food. In the control condition girls just read or talked with the experimenter for three minutes. In the experimental condition, there was a strong relationship between the scores on the restraint questionnaire and the amount of biscuits eaten, but in the control condition, there was no such relationship. These results suggest that like adults, those girls who engage in dieting behaviour are more likely to overeat when food-related cognitions are activated than those who do not engage in dieting behaviour.

Evidence for the Role of Low Self-esteem in Eating Disorders

Much evidence supports the presence of low self-esteem in adults with eating disorders. In a study comparing the reactions of dieters to those of women with anorexia or bulimia, participants were asked to think aloud whilst looking at themselves in a mirror, weighing themselves, and eating chocolate (Cooper & Fairburn, 1992). Although there were no differences between groups in the frequency of thoughts related to food, weight and body-shape, the patients’ cognitions were significantly more negative than the dieters’, perhaps indicating increased affective involvement in food and weight related domains (Vitousek, 1996) and increased meaning of these topics to the women’s view of themselves. A recent study of the
content of dysfunctional beliefs of patients with anorexia nervosa or bulimia nervosa
(Cooper, Todd & Wells, in press) also supported the notion that low self-worth is
characteristic of the eating disorders. There was evidence for the existence of both
unconditional negative beliefs about the self and distorted conditional assumptions
about eating, body shape and weight. The assumptions linked social desirability with
body shape and weight ("If I'm fat I won’t have any friends"), eating with self-control
("Eating means I’ve no self will-power"), and bingeing with cognitive and emotional
control ("I need something nice, for comfort"; all examples from Cooper et al, in
press). These studies support the presence of low self-esteem in eating disorders, but
no studies have investigated the causal role of low self-esteem in eating disorders.
Since disordered eating attitudes are common in non-clinical populations, and
negative beliefs about the self are characteristic of other psychological disorders (e.g.
depression; Beck, 1976), it is possible that eating disorders only occur when
disordered attitudes about food and weight are combined with low self-esteem. Thus,
it might be expected that in the non-clinical population, cognitions concerning eating,
body shape and weight are not necessarily associated with negative self-related
cognitions, but if this association does occur, disordered eating behaviour may be
more likely. Research has not yet investigated this possibility, although some
associations between body dissatisfaction and low self-esteem have been found. In a
large group of female soldiers, high EAT-26 scores were significantly positively
correlated with negative body-image (Koslowsky et al, 1992).

Some studies of child populations have used measures of self-esteem as well as
measures of eating attitudes (Sands et al, 1997; Veron-Guidry, Williamson &
Netemeyer, 1997) but only a few have found an association between distorted eating
attitudes and low self-esteem (e.g. Veron-Guidry et al, 1997). No studies have
addressed the question of whether distorted eating attitudes are more likely to lead to
dieting if the child also has low self-esteem. However, there is much research to show
that one particular aspect of self-esteem, body-esteem, is associated with both
distorted eating attitudes and dieting. Body esteem is very strongly related to general
self-esteem (Veron-Guidry et al, 1997; Kostanski & Gullone, 1998). In an Australian
longitudinal study, (Sands et al, 1997) twenty-six girls and thirty-five boys aged ten to
twelve years completed measures three times over a period of six months. Measures
used were the self-worth scale from the Perceived Competence Scale for Children (Harter, 1982), “Eating and Me” consisting of questions derived from the EAT (Garner & Garfinkel, 1979) and the EDI (Garner, 1991), a measure of participation in activity, and body-image satisfaction silhouettes. In the whole sample, body-dissatisfaction was positively correlated with drive for thinness scores. High self-esteem was associated with choice of a larger ideal figure on the body assessment procedure, and low self-esteem was associated with high drive for thinness scores. This suggests that in children, low self-esteem may be important in the occurrence of distorted eating- and weight-related cognitions, although the study does not provide information about the possible causal role of low self-esteem.

Conclusions

Attitudes and cognitions are crucial for understanding disordered eating patterns and eating disorders. It has been shown that cognitive theories provide an adequate framework for understanding cognitions as predisposing and maintaining factors in eating disorders. Cognitive theories have much empirical support, and can be extended to explain sub-clinical levels of disordered eating attitudes and behaviour in children and adolescents. It is clear that children as young as eight are able to self-report their attitudes to eating and body-shape, showing that distorted eating attitudes and behaviour do occur in young children as well as in adolescents and adults. Disordered eating attitudes are important and dangerous for children since research shows that such attitudes are associated with dieting behaviour which can be detrimental to development and increase vulnerability to eating disorders. At present little is known about how eating attitudes become distorted, but promising areas for research include the study of parental influence, membership of groups for whom eating attitudes are particularly salient, and links with general self-esteem. Increasing our knowledge about the causal factors for disordered eating attitudes and exploring such attitudes in younger children will increase the chances of early identification of children at risk of developing eating disorders.
REFERENCES


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Literature Review


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Major Research Project

Year III

Eating attitudes and dieting behaviour in British eight to eleven year-olds.
ABSTRACT

Background and Aims
One strategy for exploring factors relevant to childhood onset eating disorders is to investigate related phenomena, such as eating attitudes, in young children. Most research relevant to eating disorders has been carried out with adolescents. The present study aimed to extend the small literature relevant to preadolescents by carrying out a large-scale study of eating attitudes and dieting in a sample of British eight to eleven year olds.

Method
The study was cross-sectional in design and involved giving questionnaire measures to children (n = 343) and their parents (n = 158) to explore negative eating attitudes and behaviour in this age group. Also included were a smaller group of children (n = 31) with insulin dependent diabetes mellitus (IDDM) and their parents (n = 30). Children completed measures of self-esteem, and both children and parents completed measures of eating attitudes, dieting behaviour and body satisfaction.

Results
13% of children had been on a diet, 12% scored over the cut-off on the eating attitudes measure and 60% were dissatisfied with their body. Parental reports suggested that parents may have been unaware that their children had been on a diet. Compared to boys, girls were found to have lower self-esteem in terms of their physical appearance, and were more likely to want to be thinner. Children with IDDM were not found to have more negative eating attitudes than their non-diabetic peers, but were more dissatisfied with their bodies. Having negative eating attitudes was related to dieting and to having low self-esteem. There was a positive relationship between parental eating attitude scores and children’s eating attitude scores and behaviour. Concerns were raised about the validity of the eating attitudes measure with younger children, and the impact of children’s weight was discussed.

Conclusions
The present study indicated that negative eating attitudes and dieting behaviour are associated with a variety of factors, including self-esteem, parental attitudes and body esteem. These findings are consistent with models of eating disorders that propose a complex aetiology influenced by factors both internal to and external to the individual. The present study went some way to exploring important factors for the development of negative eating attitudes and dieting behaviour in children. The development of a reliable measure of eating attitudes for young children would enable future research to further elucidate factors relevant to this potentially dangerous behaviour. Some hopeful areas for research are parental control over food intake, qualitative studies of children’s eating attitudes and long-term implications of body dissatisfaction. Prospective studies would show whether the high rates of dieting found in the present study would later develop for some children into clinical eating disorders.
INTRODUCTION

Most research into eating disorders to date has focused on adults or on female adolescents. Studies using both clinical and non-clinical samples have begun to identify a clear picture of the potential risk factors for the development of eating disorders in these populations (Please see Literature review (Danvers, 1999) in this section). Treatments have been developed which can successfully reduce eating disorder symptomatology in adults, particularly adults with bulimia nervosa, and the most widely used treatment is Cognitive Behaviour Therapy (Royal College of Psychiatrists, 1992; Wilson & Fairburn, 1993). However, given the occurrence of anorexia nervosa and other eating disorders in children as young as eight years old (Jacobs & Isaacs, 1986; Fosson, Knibbs, Bryant-Waugh & Lask, 1987; Higgs, Goodyer & Birch, 1989; Gowers, Crips, Joughin & Bhat, 1991), younger age groups should not be ignored by research. In addition, eating disorders in children are less gender-biased than in adults (Lask & Bryant-Waugh, 1992), so it is important to study boys as well as girls to gain a full understanding of why eating disorders may occur in younger populations.

Part of the reason for the paucity of research into pre-adolescents with eating disorders is likely to be the relatively low prevalence of eating disorders in this age group. No epidemiological studies of eating disorders in pre-adolescents have been carried out (Lask & Bryant-Waugh, 1992) but prevalence rates are estimated at less than 0.1% (Bryant-Waugh & Lask, 1995). However, it could be argued that in children dieting rather than eating disorders should be the focus of research. Studies of non-clinical populations of children have found dieting to be common (Edlund, Halvarsson & Sjoden, 1996, Rolland, Farnhill & Griffiths, 1997), so studying dieting behaviour would be a useful way to explore factors contributing to the onset of disordered eating in young children. Childhood dieting, whether or not it is part of an eating disorder, can lead to medical complications including reproductive problems, retardation of mental development (Mallik, 1983) delayed puberty and retarded growth (Pugliese, Lifschitz, Grad, Fort & Marks-Katz, 1983). Dieting is also of relevance to clinically diagnosed eating disorders. In adolescents, dieting is a risk
factor for the development of eating disorders (Patton, Johnson-Sabine, Wood, Mann & Wakeling, 1990) and it is likely that some factors that contribute to dieting, such as body dissatisfaction (Hill, Oliver & Rogers, 1992), also contribute to eating disorders.

Another factor found to be relevant to eating disorders is negative eating attitudes, therefore the current study investigated eating attitudes as well as dieting in a sample of British eight to eleven year olds. The study aimed to explore some additional contributing factors to negative eating attitudes and dieting behaviour in this age group. The factors explored were self-esteem, body image, parental attitudes and having insulin-dependent diabetes mellitus (IDDM).

There are many measures of eating attitudes for adults (e.g. Garner & Garfinkel, 1979; Garner & Olmstead, 1982; Clark, Feldman & Channon, 1989) but the main measure for children is the Children’s Eating Attitudes Test (ChEAT, Maloney, McGuire & Daniels, 1988). The ChEAT is a 26-item self-report measure including items relating to dieting (e.g. “I have been dieting”), restricting and purging (e.g. “I like my stomach to be empty”), food preoccupation (e.g. “I think about food a lot of the time”) and oral control (e.g. “I take longer than others to eat my meals”); factors suggested by Smolak & Levine (1994). Researchers in America (Maloney, McGuire, Daniels & Specker, 1989), Israel (Sasson, Lewin & Roth, 1995) and Australia (Rolland et al, 1997) have used the ChEAT to measure negative eating attitudes in community samples of boys and girls from eight years of age. These studies have shown levels of clinically significant negative eating attitudes in 6.8% - 14% of pre-adolescent participants. Several investigators have noted that younger children score more highly on the ChEAT than older children. Sasson et al (1995) found higher ChEAT scores in Israeli 3rd and 4th grade children (age 8 – 10) than in 5th to 11th grade children (age 11 – 16), but did not report whether this difference was statistically significant. Smolak and Levine (1994) suggested that their sample of American 6th – 8th grade girls (age 11 – 14) had difficulty with the words “vomit”, “binges” and “rich new foods” on the ChEAT, and although the reliability of the ChEAT was good for all three grades, the reliability increased with age of the participants (from $\alpha = 0.78$ in 6th grade to $\alpha = 0.90$ in 8th grade). Rolland et al (1997) found that 28% of Australian 3rd grade girls (age 8) scored above the cut-off
on the ChEAT, compared to 14% of girls in the total sample (3rd to 6th grade, age 8 - 12). They suggested that some items may be less valid for the youngest children and may inflate their scores. For example, “I vomit after I have eaten” could be interpreted to include involuntary vomiting, such as after over-eating. Maloney et al (1989) found that American 3rd grade children (age 8) scored higher than those in grades 4 – 6 (age 9 – 12). However, 3rd graders’ scores showed high internal reliability and test-retest reliability, which argues against the idea that young children become confused when answering the ChEAT, and instead suggests that young children may have elevated levels of concern about eating and weight (Maloney et al, 1989). Therefore the reliability of younger children’s higher ChEAT scores remains unclear.

To investigate the higher scores in younger children, in the present study the ChEAT was modified to attempt to address the criticisms of Rolland et al and Smolak and Levine, and to increase its clarity for younger children. If such modifications to the ChEAT eliminate differences in scores according to age, it is likely that age-related differences found in earlier studies did in fact reflect confusion in the younger children. If however age differences persist after clarification of items, this might suggest the younger children do have more negative eating attitudes than their older peers.

The literature review (Danvers, 1999, this volume) showed that in Western societies, it is common for females to diet and to express concerns about body-shape and weight (e.g. Davies & Furnham, 1986; Greenfeld, Yuinlan, Harding, Glass & Bliss, 1987; Heatherton, Nichols, Mahamedi & Keel, 1995). Since in the adult and teenage age-group females are more likely than males both to diet and to have eating disorders (Lask & Bryant-Waugh, 1992), it might be expected that pre-adolescent girls would show a similarly elevated risk of negative eating attitudes and dieting. Young girls are open to media images of thin women and, since dieting behaviour and dissatisfaction with the body is so widespread, girls are likely to experience their mothers and older sisters dieting and discussing losing weight. It is therefore predicted that compared to boys, pre-adolescent girls will have more negative eating attitudes and lower body satisfaction. Furthermore, it might be expected that girls will be more likely than boys to diet, because of the increased societal pressure on females to achieve a thin ideal.
Major Research Project

(e.g. Rodin, Silberstein & Striegelmore, 1984). Hill and colleagues (Hill, Rogers & Blundell, 1989; Hill, Weaver & Blundell, 1990; Hill & Robinson, 1991; Hill, Oliver & Rogers, 1992) have shown that some girls begin dieting as young as age nine, but they have not studied young boys. It would be expected that in a large sample of pre-teenagers, there will be a proportion of both boys and girls who diet, but the proportion will be larger for girls.

As was discussed in the literature review (Danvers, 1999, this volume), research has shown that adults with IDDM are at greater risk of developing eating disorders, particularly bulimia (Powers, Malone, Coovert & Schulman, 1990; Rodin, Craven, Littlefield, Murray & Daneman, 1991; Rodin & Daneman, 1992; Wing, Nowalk, Marcus, Koeske & Finegold, 1986). The few studies of teenagers with IDDM (e.g. Kahn & Montgomery, 1996; Vila, Robert, Nollet-Clemoncon, Vera, Crosnier, Rault, Jos & Mouren-Simeoni; 1995) have shown they have elevated levels of negative eating attitudes compared to teenagers without IDDM. However, no research into eating attitudes has been conducted with pre-adolescents with IDDM. It is proposed that like adolescents, children with diabetes will have more negative eating attitudes, lower body esteem and will be more likely to diet compared to children without diabetes.

Children generally have less control than adults over their choice of food, and some argue that although children do have negative eating attitudes, these do not translate into dieting behaviour because they cannot exercise dietary restriction (e.g. Cooper & Goodyer, 1997). However, research suggests that like adults and adolescents, young children do engage in dieting behaviour (Danvers 1999, this volume). Dieting behaviour in children is influenced by negative eating attitudes (Smolak & Levine, 1994; Hill & Robinson, 1991) and body-dissatisfaction (Hill, et al, 1992). It is predicted that in the present sample, there will be a positive relationship between children's negative eating attitudes and their dieting behaviour, and a negative relationship between their body satisfaction and their dieting behaviour.

Research suggests that low self-esteem may contribute to the development of negative eating attitudes and patterns (Veron-Guidry et al, 1997). Much evidence supports the
presence of low self-esteem in adults with eating disorders (e.g. Cooper & Fairburn, 1992; Cooper, Todd & Wells, 1998), and several authors have suggested that low self-esteem plays a causal role in the development of eating disorders (Guidano & Liotti, 1983; Vitousek & Hollon, 1990; Wolff & Serpell, 1998; Fairburn, Shafran & Cooper, 1999). It could be argued that dieting and eating disorders are more likely to occur when negative attitudes about food and weight are combined with low self-esteem (see literature review). There is evidence to support this, since studies have shown a link between body esteem and negative eating attitudes and behaviour (Sands, Tricker, Sherman, Armatas & Maschette, 1997) and recent research shows that the combination of negative assumptions about eating and negative self-beliefs is more characteristic of women with eating disorders than dieters, and more characteristic of dieters than of psychiatric controls (Cooper & Turner, 2000). The model suggested by authors such as Fairburn, Shafran and Cooper (1999) and Cooper and Turner (2000) proposes that low self-esteem is a crucial mediating factor for the development of eating disorders. Although this model has some support in adult populations, it has not been explored with a pre-adolescent group. The present study gave an opportunity to explore whether children with high self-esteem will be less likely to diet even if they have negative eating attitudes.

It is predicted that parental behaviour and attitudes that support dieting will also influence dieting in young children. It has been shown that Polish adolescent girls with negative eating attitudes were more likely to have a dieting mother or other close relative (Wlodarczyk-Bisaga & Dolan, 1996), and British ten year olds who diet were likely to have a mother who also diets (Hill et al, 1990). One might expect that in younger children parental beliefs about dieting and weight loss would have a great deal of influence over the dieting patterns of young children, therefore it is predicted that parents with negative eating attitudes will be more likely to have children with negative eating attitudes, and parents with negative eating attitudes will be more likely to have children who diet.
Summary of Hypotheses

Hypothesis 1: Compared to boys, preadolescent girls will have more negative eating attitudes, lower body satisfaction, and higher levels of dieting behaviour.

Hypothesis 2: Compared to children without diabetes children with diabetes will have more negative eating attitudes, lower body satisfaction, and higher levels of dieting behaviour.

Hypothesis 3: There will be a positive relationship between children’s negative eating attitudes and their dieting behaviour, and this relationship will be moderated by self-esteem.

Hypothesis 4: Parents with negative eating attitudes will be more likely to have children who diet or have negative eating attitudes.

In addition, the study provided an opportunity to investigate the question of whether modifying the ChEAT to further explain some of the more complex questions would eliminate differences in scores according to age in the preadolescent age group.
METHOD

Design

This was a cross-sectional study of eight to eleven year-old children and their parents. Questionnaire measures were given to children to explore relationships between eating attitudes, self-esteem, body satisfaction and dieting behaviour. Parents also completed questionnaires to allow exploration of the relationships between adults' and children's attitudes and behaviour. Two samples of children were included, a large group recruited through schools, and a smaller group of children with insulin dependent diabetes mellitus (IDDM).

Participants

Participants were 343 eight to eleven year-olds without diabetes and 158 of their parents or guardians, and 31 eight to eleven year-olds with diabetes and 30 of their parents. Children without diabetes were recruited from three local primary schools and children with diabetes were recruited from the diabetic clinics of three of the largest hospitals in the Surrey area. The number of non-diabetic children in each age group is shown in Table 1.

<table>
<thead>
<tr>
<th>AGE</th>
<th>FEMALES</th>
<th></th>
<th>MALES</th>
<th></th>
<th>TOTAL</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>Eight</td>
<td>45</td>
<td>13.21%</td>
<td>32</td>
<td>9.32%</td>
<td>77</td>
<td>22.4%</td>
</tr>
<tr>
<td>Nine</td>
<td>55</td>
<td>16.03%</td>
<td>73</td>
<td>21.28%</td>
<td>128</td>
<td>37.3%</td>
</tr>
<tr>
<td>Ten</td>
<td>55</td>
<td>16.03%</td>
<td>59</td>
<td>17.2%</td>
<td>114</td>
<td>33.2%</td>
</tr>
<tr>
<td>Eleven</td>
<td>12</td>
<td>3.49%</td>
<td>12</td>
<td>3.49%</td>
<td>24</td>
<td>7.0%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>167</td>
<td>48.7%</td>
<td>176</td>
<td>51.3%</td>
<td>343</td>
<td>100%</td>
</tr>
</tbody>
</table>
It can be seen from Table 1 that 167 girls and 176 boys consented to participate. One parent (0.3%) refused consent for their child to participate, and six children (0.7%) declined to participate. 158 parents (46.1%) returned completed questionnaires, and details are shown in Table 2.

**Table 2: Summary of Parents of Children Without Diabetes**

<table>
<thead>
<tr>
<th>RELATIONSHIP TO CHILD</th>
<th>FEMALES</th>
<th>MALES</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Mother</td>
<td>73</td>
<td>46.2%</td>
<td>73</td>
</tr>
<tr>
<td>Father</td>
<td>5</td>
<td>3.2%</td>
<td>4</td>
</tr>
<tr>
<td>Step-mother</td>
<td>0</td>
<td>0%</td>
<td>1</td>
</tr>
<tr>
<td>Female guardian</td>
<td>0</td>
<td>0%</td>
<td>1</td>
</tr>
<tr>
<td>Male, relationship not specified</td>
<td>1</td>
<td>0.6%</td>
<td>0</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>79</td>
<td>50%</td>
<td>79</td>
</tr>
</tbody>
</table>

In the sample with diabetes, of a total possible 50 children, 13 girls and 18 boys consented to participate. 3 (0.6%) children did not attend their appointments, 14 (28%) did not have an appointment that coincided with the presence of the researcher in the clinic and 2 (0.4%) did not want to participate. The number of diabetic children in each age group is shown in Table 3.

**Table 3: Summary of Child Participants with Diabetes**

<table>
<thead>
<tr>
<th>AGE</th>
<th>FEMALES</th>
<th>MALES</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>n</td>
<td>%</td>
<td>n</td>
</tr>
<tr>
<td>Eight</td>
<td>3</td>
<td>9.68%</td>
<td>5</td>
</tr>
<tr>
<td>Nine</td>
<td>8</td>
<td>25.81%</td>
<td>7</td>
</tr>
<tr>
<td>Ten</td>
<td>2</td>
<td>6.45%</td>
<td>5</td>
</tr>
<tr>
<td>Eleven</td>
<td>0</td>
<td>0%</td>
<td>1</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>13</td>
<td>41.9%</td>
<td>18</td>
</tr>
</tbody>
</table>

26 mothers and 4 fathers of children with diabetes filled in the questionnaires. Only one parent of a non-diabetic child did not fill in the questionnaire.

---

1 There were no significant differences between responding and non-responding parents in terms of their child's sex, age, school attended, ChEAT score, global self-worth score, or whether or not they had been on a diet (see Appendix 1).
Measures

Children’s questionnaires


A modified version of the Children’s Eating Attitude Test (ChEAT-26, Maloney et al, 1988) was used. The ChEAT is based on the 26-item version of the Eating Attitudes Test (Garner, Olmstead, Bohr & Garfinkel, 1982, adapted from EAT-40, Garner & Garfinkel, 1979). The ChEAT-26 is a self-report scale presented in a 6-point fixed choice format, requiring participants to say how often each item is true of themselves (answers range from “always” through “very often”, “often”, “sometimes” and “rarely”, to “never”). The ChEAT includes items relating to dieting (e.g. “I stay away from foods with sugar in them”), restricting and purging (e.g. “I like my stomach to be empty”), food preoccupation (e.g. “I think about food a lot of the time”) and oral control (e.g. “I take longer than others to eat my meals”); factors suggested by Smolak & Levine (1994) are shown in Appendix 6. Each extreme response in the “disordered” direction (i.e. “always”, for all but one reversed score question) receives a score of three, “very often” receives a score of two and “often” receives a score of one. No scores are given for “non-disordered” responses (“sometimes”, “rarely” and “never”) so the maximum score is 78. Test-retest reliability is reported as $r = 0.81$, and internal reliability as $\alpha = 0.76$ (Maloney et al 1988). For the original EAT-40, studies of anorexic women and non-eating disordered women (controls) showed that a cut-off score of 30 minimised the number of controls classified as eating disordered (7% of controls) whilst still correctly classifying those with eating disorders (Garner & Garfinkel, 1979). Studies of anorexic and control women using the EAT-26 (Garner et al, 1982) showed that a cut-off score of 20 correctly classified a similar proportion of participants. Maloney et al (1988) found that 7% of children also scored above 20 on the ChEAT, but unfortunately this study did not use clinical interviews to establish whether children who scored above this cut-off would meet diagnostic criteria for eating disorders.

2 An exercise and food control questionnaire was also included (see Appendix 2) but reporting the results of these measures was outside the scope of the present study.
In the present study, modifications were made to the ChEAT to increase clarity and reliability for this age group. The phrase “eaten a huge amount” was added in parentheses after “I have gone on eating binges...” and the alternative expression of “being sick” was added in parentheses after the word “vomit” in two questions. Rolland, Farnill and Griffiths (1997) suggest that children understand item 9 (“I vomit after I have eaten”) to include unintentional vomiting for example after overeating or when unwell, so this item was replaced by “I make myself sick (vomit) on purpose after I have eaten”. Item 19 (“I can show self-control around food”) had been found to correlate negatively with the rest of the scale (Maloney et al, 1988; Smolak & Levine, 1994), so this item was excluded. Item 25 (“I enjoy trying rich new foods”) was also excluded, since research with adolescent girls showed this item had a low item-total correlation, and was difficult to understand (Smolak and Levine, 1994). For the non-diabetic group, inter-item reliability of the 24-item Modified ChEAT was Cronbach’s $\alpha=0.76$, which was better than the reliability of the original ChEAT-26 ($\alpha=0.73$). These reliability figures are comparable to those originally reported for the ChEAT-26 ($\alpha = 0.76$, Maloney et al, 1988) but lower than those reported for other modifications (e.g. 23-item version: $\alpha = 0.89$, Smolak & Levine, 1994). Since the Modified ChEAT had 24 items, it might be expected that a score of 18 on the Modified ChEAT would be comparable to a score of 20 on the ChEAT-26.\(^3\)

For children with diabetes, further modifications were made to the ChEAT. If a child has diabetes, it would be expected that they would score highly on some questions of the ChEAT, whether or not they had particular concerns about eating, dieting or weight. Three questions were therefore modified to elucidate whether behaviours were affected by diabetes or by weight concerns. For example, the items “I stay away from foods with sugar in them” and “I eat diet foods” were printed twice, once with the ending “…to lose weight” and once with the ending “…because of my diabetes”, and only the answers to questions with the ending “…to lose weight” were included in the total score. Eating binges can sometimes occur when a person with diabetes is experiencing low blood-sugar, so the question about binges was modified to exclude

\(^3\) Six questions in the ChEAT response format relating to interest in healthy eating, exercise and others’ eating habits were mixed in with the Modified ChEAT questions to give additional descriptive data about the sample, but these questions were not included in the analysis.
binges during a “hypo”. Similar adaptations of eating-related scales have been used by Khan & Montgomery (1996) with a sample of 13 to 20 year-old young women with diabetes. Reliability of the Modified ChEAT was $\alpha = 0.58$ for the diabetic group, or $\alpha = 0.64$ with item 6 (“I am aware of the energy (calorie) content in foods that I eat”) deleted. However to enable comparisons between diabetic and non-diabetic children, the 24-item Modified ChEAT was used as the measure of negative eating attitudes for all participants in the study.


This is a scale adapted from the Self-Perception Profile for Children (Harter 1985), designed to measure global and domain-specific self-worth of adolescents. For each item children must choose between two different types of person and say which is most like them. For example, one item is: “Some people are very hard to like BUT Other people are very easy to like”. Participants then choose whether the characteristic they have chosen is “really true”, or only “sort of true” of them.

Unfortunately, the adolescent version of the scale was used in error in this study, but there are some advantages over the child version of the scale. The adolescent version allows greater specificity since it has a subscale relating to friendship, whereas the children’s version does not. The subscales were Athletic Competence, Scholastic Competence, Social Competence, Physical Appearance, Morality, Close Friendship and Global Self-worth. For the present study, the subscales Job Competence and Romantic Appeal were not used, as these were not thought to be relevant for the present age-group. Minor changes to the wording of the scale were made to make it more readable for young British children: “teenagers” was changed to “people”, “smart” was changed to “clever” and “figuring out the answers” was changed to “working out the answers”.

The SPPA has been used with children from the age of 9 years (McGuire, Neiderhiser, Reiss, Hetherington & Plomin, 1994). In the present study, inter-item reliability for the scale was adequate to good. Alpha values for the diabetic and non-diabetic sample for each of the subscales are shown in Table 4 below.
Table 4: Alpha Values for each of the Self-esteem Subscales

<table>
<thead>
<tr>
<th>SUBSCALE</th>
<th>NON-DIABETIC GROUP</th>
<th>DIABETIC GROUP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global Self-worth</td>
<td>0.74</td>
<td>0.72</td>
</tr>
<tr>
<td>Physical Appearance</td>
<td>0.78</td>
<td>0.81</td>
</tr>
<tr>
<td>Social Competence</td>
<td>0.67</td>
<td>0.80</td>
</tr>
<tr>
<td>Athletic Competence</td>
<td>0.79</td>
<td>0.65</td>
</tr>
<tr>
<td>Morality</td>
<td>0.61</td>
<td>0.59</td>
</tr>
<tr>
<td>Scholastic Competence</td>
<td>0.63</td>
<td>0.79</td>
</tr>
<tr>
<td>Close Friendship</td>
<td>0.68</td>
<td>0.60</td>
</tr>
</tbody>
</table>

The BIA consists of nine silhouettes of either male or female pre-pubescent figures ranging in size from very thin to obese. Children are asked to select from an array the figure that looks most like they do now (Current Body Shape, CBS). They are then asked to select from another array the figure that they would most want to look like (Ideal Body Shape, IBS). The CBS-IBS discrepancy can then be taken as a measure of body dissatisfaction where negative discrepancies indicate a wish to be fatter, positive discrepancies indicate a wish to be thinner and a zero score indicates satisfaction. In the present study discrepancy scores were used to divide children into three body satisfaction categories: “Want to be thinner”, “Satisfied” and “Want to be fatter”. For children aged eight to thirteen, Veron-Guidry & Williamson (1996) report that immediate test-retest reliability of the BIA-C is excellent (r = 0.93 for IBS and r = 0.94 for CBS) and one week test-retest reliability is good (r = 0.67 for IBS, r = 0.79 for CBS and r = 0.67 for the discrepancy score).
Parents' questionnaires

   This is the adult version of the ChEAT-26, and is scored in the same way as that test. As previously explained, the EAT-26 has a cut-off score of 20. It has good reported reliability (internal consistency $\alpha = 0.90$, Garner et al, 1982). For the present sample, reliability of the EAT-26 was Cronbach’s $\alpha = 0.78$ for the parents of non-diabetic children and 0.90 for the parents of diabetic children.

2. *Children’s Dieting Behaviour Questionnaire*, shown in Appendix 7.
   Parents were asked if their child had ever been on a diet, and if so, whether an adult in the family supported the diet. Parents were asked to rate how often in the last six months their children had engaged in seven weight management behaviours (suggested by Smolak & Levine (1994) who were investigating eating attitudes and behaviour in young adolescent girls). The behaviours were: eating nothing all day, skipping a meal, reducing sweets and chocolate, keeping a careful track of what has been eaten, exercising to lose weight, eating less at mealtimes and following a special diet to lose weight. Parents chose from “Not at all”, “Some days but not all days” or “Nearly every day”. Parents were also asked for their child’s weight and height to enable Body Mass Index (BMI) to be calculated, in order to help in the interpretation of the results.

3. *Parental Body Satisfaction and Dieting Behaviour Questionnaire*, shown in Appendices 7 and 8.
   Parents were asked to rate their degree of satisfaction with their appearance on a visual analogue scale ranging from “Not at all satisfied” to “Completely satisfied” and asked if they had ever been on a diet (Appendix 7). They answered the seven weight management questions (described above) regarding their own behaviour over the past six months (Appendix 8).

---

4 An eating diary was included in the parent’s questionnaire (see Appendix 9) but data obtained were not used as the quality of the data set was insufficient to calculate estimates of daily calorie intake. An exercise and food intake questionnaire was also included (see Appendix 7) but reporting of the results of this was outside the scope of the present study.
Procedure and Ethical Approval

Non-diabetic group
Six local schools were contacted and given information about the study. Three schools expressed an interest in the study, and the researcher met with the head teachers of each school to discuss the study and show examples of the questionnaires. The procedures for obtaining consent and informing families about the study were discussed and agreed with the head teachers before seeking approval from the University Ethics Committee (the letter of approval from the committee is shown in Appendix 10).

In the first instance, parents of all eight to eleven year-olds were informed by letter about the study (see Appendix 11) and given the chance to ask questions or opt out of the study. The researcher then met individually with each of the class teachers to explain the study and familiarise them with the questionnaire. Since teachers were present in the classroom during the completion of questionnaires, it was important to ensure that teachers would respect children's privacy and give guidance only in understanding questions, not in answering them. The researcher then visited each class and told the children about the study and asked for their consent to participate. When the questionnaires were handed out to the class the researcher checked with each child individually that they wished to participate. Those that chose not to participate in the study (n = 6) completed class work or reading whilst the rest of the class worked on their questionnaires. Children filled in questionnaires at their own pace, but were encouraged to ask the researcher or teacher for extra help if needed. In addition, the researcher explained the procedure for answering the SPPA and ChEAT to each child, and ensured they had understood the more difficult questions. When children asked for help, they were given a brief explanation of the question and then left to answer it on their own. The same explanation (discussed beforehand with teachers) was given to all children who asked for help on a particular question. When questionnaires were completed, the researcher briefly checked for missing data, and gave individual children the opportunity to discuss any concerns about the questions. Children were given an envelope to take home to their parents including further
information about the study (see Appendix 12), a parents' questionnaire and a pre-paid envelope.

**Diabetic group**
The Paediatric Consultants of three local hospitals were contacted and given information about the study. The researcher met with the Consultants to discuss the study, show examples of the questionnaires and agree procedures for obtaining consent and informing families about the study. Procedures were devised which met Consultants' requirements before seeking approval from the relevant Health Authority Ethics Committee (approval letters from both committees are shown in Appendix 13).

Parents of all eight to eleven year-olds were informed by letter about the study (see Appendix 14) and given the chance to contact the researcher to ask questions about the study. When children attended their regular diabetes clinic appointment the researcher explained the study to parents and children (following the "Information sheet for Children" see Appendix 15) and asked for their consent to participate. Parents and children were given an opportunity to ask questions and then asked to sign the information sheet and consent form (see Appendix 16). Parents returned to the waiting room to complete their questionnaires, and children stayed with the researcher. As the clinic setting allowed one-to-one meetings with children, the questionnaire was read aloud to the child, and children were encouraged to ask the researcher for extra help if needed. In addition the researcher explained the procedure for answering the SPPA and ChEAT and ensured they had understood the more difficult questions. When children asked for help, they were given a brief explanation of the question and then left to answer it on their own. The same explanation was given to all children who asked for help on a particular question. When questionnaires were completed, the researcher briefly checked for missing data, and gave individual children the opportunity to discuss any concerns about the questions. Parents were also given the opportunity to discuss any concerns raised by the questionnaire. An information letter explaining the main aims of the study was sent to the GPs of each participating family (see Appendix 17).
Relevant group comparisons were conducted on measures of eating attitudes, body image, self-esteem, BMI and dieting behaviour. To investigate differences between diabetic and non-diabetic participants, a comparison group of non-diabetic participants (n = 31) was chosen from the whole sample. Cases were matched to diabetic participants on the basis of age, sex, sex of parent and amount of missing data, and were chosen at random from the pool of possible matching participants.

Categorical variables were compared using $\chi^2$ tests, and if invalid, the Fisher’s Exact test was used (denoted by FI). Significant group differences were explored using post-hoc $\chi^2$ tests between pairs of groups. Normal probability plots, skewness measures and kurtosis measures were used to determine whether or not scaled variables met criteria for normality. Normally distributed scaled variables were compared using t-tests or analysis of variance, with Tukey’s post-hoc tests where appropriate. For non-normal scaled variables, the non-parametric Kruskal-Wallis H and Mann-Whitney U tests were used for group comparisons.

The relationships between variables were investigated in two ways. Firstly, groups of children divided according to Modified ChEAT score or whether or not they had been on a diet were compared on their scores on the other variables. Secondly, correlations (Pearson’s or Spearman’s as appropriate) were used to investigate relationships between the Modified ChEAT and other normally distributed scaled variables.
RESULTS

Section 1: Comparisons on Age, Sex and Diabetic Status

Scores on the Modified ChEAT

Non-diabetic group

For the non-diabetic group, the mean Modified ChEAT score was 9.03, and 12.4% scored above the cut-off point (>18). The percentage above the cut-off point is higher than that reported in other samples of similar ages (e.g. 7%, Maloney et al, 1988). Table 5 shows the mean Modified ChEAT score and numbers above the cut-off according to age and sex.

To investigate differences between participants according to age and sex, two-way ANOVA were conducted on Modified ChEAT scores. As expected, ChEAT scores were non-normally distributed, since the ChEAT is a clinical tool and participants were from a non-clinical population, therefore log transformations were used.

Table 5: Mean Modified ChEAT Scores and Numbers above the Cut-off for the Non-diabetic Group

| AGE (years) | FEMALES | | MALES | | BOTH SEXES |
|-------------|---------|---|------|---|------|---|------|---|
| | Mean (s.d.) | % > cutoff | n | Mean (s.d.) | % > cutoff | n | Mean (s.d.) | % > cutoff | n |
| Eight | 13.43 (10.02) | 3.8% | 42 | 10.63 (7.03) | 12.5% | 32 | 12.22 (8.91) | 18.9% | 74 |
| Nine | 9.50 (7.26) | 13.5% | 52 | 9.51 (8.08) | 14.5% | 69 | 9.50 (7.71) | 14.0% | 121 |
| Ten | 7.36 (7.65) | 9.1% | 55 | 6.35 (5.94) | 3.5% | 57 | 6.85 (6.82) | 6.3% | 112 |
| Eleven | 9.17 (9.71) | 25% | 12 | 4.83 (4.37) | 0% | 12 | 7.0 (7.69) | 12.5% | 24 |
| ALL AGES | 9.77 (8.62) | 15.5% | 161 | 8.33 (7.21) | 9.4% | 170 | 9.03 (7.95) | 12.4% | 331 |

224
There was no significant difference in Modified ChEAT score between males and females \((F = 1.277, df = 1,331, p = 0.259)\), but there was a significant main effect of age \((F = 7.753, df = 3,331, p < 0.001)\). There was no interaction between sex and age \((F = 0.163, df = 3,331, p = 0.922)\). Tukey’s post-hoc tests showed that eight year-olds scored significantly higher than both ten \((d = 0.27, p < 0.001)\) and eleven year-olds \((d = 0.28, p = 0.016)\), and nine year-olds scored significantly higher than ten year olds \((d = 0.15, p = 0.021)\). There were no other significant differences between age groups. These results are shown graphically in Figure 1.

![Figure 1: Mean Modified ChEAT Scores for the Non-diabetic Group](image)

The numbers scoring above the cut-off on the Modified ChEAT are shown in Figure 2. There were no differences in the percentage of children above the cut-off according to age \((\chi^2 = 7.229, df = 3, p = 0.065)\) or sex \((\chi^2 = 2.918, df = 1, p = 0.088)\). Four post-hoc \(\chi^2\) tests were carried out to compare males and females within each age group on the number above the cut-off on the Modified ChEAT. There were no differences according to sex in any age group\(^5\), but in some age groups the non-significant results were possibly due to small sample sizes.

There was no evidence that the modifications to the ChEAT eliminated age differences in scores. Age differences in ChEAT scores were further explored by looking at factors and individual items of the ChEAT (results shown in Appendix 18).

\(^5\) Eight year-olds: \(\chi^2 = 1.514, df = 1, p = 0.218\); nine year-olds: \(\chi^2 = 0.026, df = 1, p = 0.872\); ten year-olds: \(F_1 p = 0.198\); eleven year-olds: \(F_1 p = 0.109\).
Diabetic group

For the diabetic sample, the mean Modified ChEAT score was 10.33, and 3 (10%) scored above the cut-off point (> 18). The percentage above the cut-off point is also higher than that reported in non-diabetic samples of similar ages (e.g. 7%, Maloney et al, 1988). Table 6 shows the mean score and percentage above the cut-off according to sex, and also shows equivalent figures for the non-diabetic comparison group. Age differences could not be explored in the diabetic group since there were too few participants to be able to use formal statistical tests (n = 31).

### Table 6: Mean Modified ChEAT Scores and Numbers above the Cut-off for the Diabetic Group and Comparison Group

<table>
<thead>
<tr>
<th></th>
<th>MEAN MODIFIED ChEAT SCORE</th>
<th>s.d.</th>
<th>n</th>
<th>ABOVE CUT-OFF</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>%</td>
</tr>
<tr>
<td>Females</td>
<td>8.85</td>
<td>5.23</td>
<td>13</td>
<td>0%</td>
</tr>
<tr>
<td>Males</td>
<td>11.47</td>
<td>7.20</td>
<td>17</td>
<td>17.6%</td>
</tr>
<tr>
<td>All Diabetics</td>
<td>10.33</td>
<td>6.46</td>
<td>30</td>
<td>10%</td>
</tr>
<tr>
<td>Comparison Group</td>
<td>8.55</td>
<td>8.48</td>
<td>31</td>
<td>16.1%</td>
</tr>
</tbody>
</table>

In the diabetic group there was no difference between males and females in mean Modified ChEAT score (t = -0.607, df = 28, p = 0.549) or in the percentage of diabetic participants above the cut-off (FI p = 0.238).
Comparisons between diabetic and non-diabetic groups

It was hypothesised that children with diabetes would score more highly on the Modified ChEAT than children without diabetes. A t-test showed that there were no differences between the diabetic group and the non-diabetic comparison group on the Modified ChEAT score ($t = -1.470, df = 59, p = 0.147$). Similarly, there were no differences between the diabetic and non-diabetic groups in the percentage of children above the cut-off on the modified ChEAT ($F = 0.707$).

Body Satisfaction

Children’s answers on the Body Image Assessment Procedure were converted into discrepancy scores (Current body size – ideal body size) that were converted into three satisfaction categories: “Satisfied” (score = 0), “Want to be thinner” (score > 0) and “Want to be fatter” (score < 0).

Non-diabetic group

The numbers in each satisfaction category are shown in Table 7 and displayed graphically in Figure 3.

Table 7: Number of Non-diabetics in each Body Satisfaction Category, showing Percentages of Sex and Age Group in each Category

<table>
<thead>
<tr>
<th>AGE</th>
<th>WANT TO BE THINNER n</th>
<th>% of age &amp; sex group</th>
<th>SATISFIED n</th>
<th>% of age &amp; sex group</th>
<th>WANT TO BE FATTER n</th>
<th>% of age &amp; sex group</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Females</td>
<td>Males</td>
<td>Females</td>
<td>Males</td>
<td>Females</td>
<td>Males</td>
<td>Females</td>
</tr>
<tr>
<td>Eight</td>
<td>23</td>
<td>9</td>
<td>13</td>
<td>10</td>
<td>7</td>
<td>12</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td>53.5%</td>
<td>29.0%</td>
<td>30.2%</td>
<td>32.3%</td>
<td>16.3%</td>
<td>38.7%</td>
<td></td>
</tr>
<tr>
<td>Nine</td>
<td>26</td>
<td>30</td>
<td>21</td>
<td>24</td>
<td>6</td>
<td>16</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td>49.1%</td>
<td>42.9%</td>
<td>39.6%</td>
<td>34.3%</td>
<td>11.3%</td>
<td>22.8%</td>
<td></td>
</tr>
<tr>
<td>Ten</td>
<td>27</td>
<td>18</td>
<td>22</td>
<td>31</td>
<td>6</td>
<td>8</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td>49.1%</td>
<td>31.6%</td>
<td>40.0%</td>
<td>54.4%</td>
<td>10.9%</td>
<td>14.0%</td>
<td></td>
</tr>
<tr>
<td>Eleven</td>
<td>6</td>
<td>3</td>
<td>4</td>
<td>7</td>
<td>2</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>50%</td>
<td>25.0%</td>
<td>33.3%</td>
<td>58.3%</td>
<td>16.7%</td>
<td>16.7%</td>
<td></td>
</tr>
<tr>
<td>All ages</td>
<td>82</td>
<td>60</td>
<td>60</td>
<td>72</td>
<td>21</td>
<td>38</td>
<td>163</td>
</tr>
<tr>
<td></td>
<td>50.3%</td>
<td>35.3%</td>
<td>36.8%</td>
<td>42.35%</td>
<td>12.9%</td>
<td>22.35%</td>
<td></td>
</tr>
</tbody>
</table>
\(\chi^2\) tests showed that satisfaction was affected by the child’s sex (\(\chi^2 = 8.792\) df = 2, \(p = 0.012\)) but not by age (\(\chi^2 = 8.066\) df = 6, \(p = 0.233\)). Post hoc comparisons between pairs of categories revealed that females were more likely to want to be thinner than males, whilst males were more likely to want to be fatter than females (\(\chi^2 = 7.949\), df = 1, \(p = 0.005\)).

Diabetic group
When diabetic children were divided according to their sex, expected frequencies were below 5 in 67% of cells, due to the small sample size. Therefore \(\chi^2\) tests on pairs of categories were used. There was no effect of the child’s sex on Satisfaction Category\(^6\). Results are shown in Table 8 and displayed graphically in Figure 4.

\(^6\) Satisfied vs Want to be thinner: FI \(p = 0.450\); Satisfied vs want to be fatter: FI \(p = 0.247\); Want to be thinner vs Want to be fatter: FI \(p = 0.327\).
Table 8: Number of Diabetics in each Body Satisfaction Category, showing Percentages of Sex Group in each Category

<table>
<thead>
<tr>
<th>SEX</th>
<th>WANT TO BE THINNER n</th>
<th>WANT TO BE SATISFIED n</th>
<th>WANT TO BE FATTER n</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% of sex group</td>
<td>% of sex group</td>
<td>% of sex group</td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>8</td>
<td>4</td>
<td>1</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td>61.4%</td>
<td>30.8%</td>
<td>7.7%</td>
<td></td>
</tr>
<tr>
<td>Males</td>
<td>4</td>
<td>3</td>
<td>10</td>
<td>17</td>
</tr>
<tr>
<td></td>
<td>23.5%</td>
<td>17.7%</td>
<td>58.8%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>12</td>
<td>7</td>
<td>11</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>40.0%</td>
<td>23.33%</td>
<td>36.67%</td>
<td></td>
</tr>
</tbody>
</table>

Figure 4: Number of Males and Females with Diabetes in each Body Satisfaction Category

Comparisons between diabetic and non-diabetic children

It was hypothesised that children with diabetes would be less satisfied with their bodies than children without diabetes. The percentages in each satisfaction category are shown in Table 9 below.
Table 9: Comparison between Diabetic and Non-diabetic Children’s Body Satisfaction Categories

<table>
<thead>
<tr>
<th>Participant type</th>
<th>WANT TO BE THINNER n</th>
<th>WANT TO BE SATISFIED n</th>
<th>WANT TO BE FATTER n</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>% of group</td>
<td>% of group</td>
<td>% of group</td>
<td></td>
</tr>
<tr>
<td>Diabetic</td>
<td>18</td>
<td>7</td>
<td>5</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>60.0%</td>
<td>23.3%</td>
<td>16.7%</td>
<td></td>
</tr>
<tr>
<td>Non-diabetic</td>
<td>12</td>
<td>16</td>
<td>2</td>
<td>30</td>
</tr>
<tr>
<td></td>
<td>40.0%</td>
<td>33.3%</td>
<td>6.7%</td>
<td></td>
</tr>
</tbody>
</table>

Expected frequencies were below 5 in 33% of cells. Three \( \chi^2 \) tests were therefore used to compare pairs of categories. There was no significant effect of diabetes on “Want to be fatter” versus “Want to be thinner” (FI \( p = 0.459 \)) or on “Satisfied” versus “Want to be fatter” (FI \( p = 0.068 \)), but there was a significant effect of diabetes on “Satisfied” versus “Want to be thinner” (\( \chi^2 = 4.567, \text{ df} = 1, p = 0.033 \)), with children with diabetes being more likely to want to be thinner than children without diabetes.

Body Mass Index

Body Mass Index (BMI) assesses the weight-to-height relationship and is calculated by:

\[
\text{BMI} = \frac{\text{weight (kgs)}}{\text{height (m)}^2}
\]

Non-diabetic group

For the non-diabetic group the mean BMI score was 17.5 (s.d. = 3.10) and the range was 12.5 – 29.9. Mean BMI scores according to age and sex are shown in Table 10.

Table 10: BMI Scores for the Non-diabetic Group

<table>
<thead>
<tr>
<th>AGE</th>
<th>FEMALES Mean (s.d.) n</th>
<th>MALES Mean (s.d.) n</th>
<th>BOTH SEXES Mean (s.d.) n</th>
</tr>
</thead>
<tbody>
<tr>
<td>eight</td>
<td>17.7 (3.8) 15</td>
<td>17.4 (2.2) 9</td>
<td>17.6 (3.2) 24</td>
</tr>
<tr>
<td>nine</td>
<td>16.9 (3.7) 22</td>
<td>17.5 (3.4) 25</td>
<td>17.2 (3.5) 47</td>
</tr>
<tr>
<td>ten</td>
<td>18.6 (3.2) 18</td>
<td>16.9 (1.9) 20</td>
<td>17.7 (2.7) 38</td>
</tr>
<tr>
<td>eleven</td>
<td>18.4 (0.5) 2</td>
<td>18.1 (0.5) 2</td>
<td>18.2 (0.4) 4</td>
</tr>
<tr>
<td>total</td>
<td>17.7 (3.5) 57</td>
<td>17.3 (2.6) 56</td>
<td>17.5 (3.1) 113</td>
</tr>
</tbody>
</table>
There were no differences in BMI score according to sex (F = 0.560, df = 1, 109, p = 0.456) or age (F = 0.375, df = 2, 109, p = 0.688) and there was no interaction effect (F = 1.374, df = 2, 109, p = 0.258).

**Diabetic group**

The mean BMI score for the diabetic group was 19.5 (s.d. = 4.5) and the range was 12.9 – 34.1. The mean BMI scores according to age and sex for the diabetic children are shown in Table 11 together with scores for the non-diabetic comparison group. In the diabetic group there was no difference in BMI according to sex (t = 0.239, df = 18, p = 0.814).

<table>
<thead>
<tr>
<th>Table 11: BMI Scores for the Diabetic Group and the Comparison Group</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BMI SCORE</strong></td>
</tr>
<tr>
<td>Female Diabetics</td>
</tr>
<tr>
<td>Male Diabetics</td>
</tr>
<tr>
<td>All Diabetics</td>
</tr>
<tr>
<td>Comparison Group</td>
</tr>
</tbody>
</table>

Comparisons between diabetic and non-diabetic children

The non-diabetic children in the comparison group had significantly lower BMI scores than the diabetic children (t = -2.316, df = 48, p = 0.025).

**Self-Esteem Scores**

**Non-diabetic group**

The self-esteem measure produces seven separate subscales rather than a total score. The mean scores for each self-esteem scale according to age and sex are shown in Table 12. Two-way ANOVA was used to investigate differences in self-esteem scores according to age and sex, and the results of these analyses are also shown in Table 12. There were no significant main effects of age for any subscale. There was one interaction effect, for Scholastic Competence, but this did not remain significant after

---

7 Excluding eleven year olds due to the small sample size.
using the Bonferroni correction for multiple comparisons. There were main effects of
sex for Athletic Competence, Morality and Physical Appearance, but only the effects
for Athletic Competence and Physical Appearance remained significant after using
the Bonferroni correction for multiple comparisons. Males had higher self-esteem
scores than females for the subscales of Physical Appearance and Athletic
Competence.

Diabetic group
The mean scores for each self-esteem subscale according to sex are shown in Table
13. T-tests were used to investigate differences in self-esteem scores according to sex
for each subscale, and the results of these analyses are also shown in Table 13. There
were no significant differences between males and females on any of the self-esteem
subscales. Differences according to age were not explored due to small sample sizes.
Table 12: Mean Scores for the Non-diabetic Group on the Seven Self-esteem Subscales with Results of Two-way ANOVA

<table>
<thead>
<tr>
<th>SUBSCALE</th>
<th>AGE</th>
<th>FEMALES</th>
<th>MALES</th>
<th>TEST RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>s.d.</td>
<td>Mean</td>
<td>s.d.</td>
</tr>
<tr>
<td>Global self-worth</td>
<td>8</td>
<td>2.83</td>
<td>0.62</td>
<td>3.07</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>2.92</td>
<td>0.66</td>
<td>2.89</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>2.94</td>
<td>0.75</td>
<td>2.91</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>3.02</td>
<td>0.49</td>
<td>3.00</td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>2.90</td>
<td>0.67</td>
<td>2.94</td>
</tr>
<tr>
<td>Scholastic</td>
<td>8</td>
<td>2.66</td>
<td>0.61</td>
<td>2.57</td>
</tr>
<tr>
<td>Competence</td>
<td>9</td>
<td>2.46</td>
<td>0.54</td>
<td>2.60</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>2.83</td>
<td>0.60</td>
<td>2.52</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>2.67</td>
<td>0.71</td>
<td>2.56</td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>2.65</td>
<td>0.61</td>
<td>2.57</td>
</tr>
<tr>
<td>Social</td>
<td>8</td>
<td>2.90</td>
<td>0.71</td>
<td>3.10</td>
</tr>
<tr>
<td>Competence</td>
<td>9</td>
<td>2.97</td>
<td>0.64</td>
<td>2.85</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>3.05</td>
<td>0.55</td>
<td>2.93</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>3.12</td>
<td>0.59</td>
<td>2.89</td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>2.99</td>
<td>0.62</td>
<td>2.93</td>
</tr>
<tr>
<td>Athletic</td>
<td>8</td>
<td>2.63</td>
<td>0.71</td>
<td>3.09</td>
</tr>
<tr>
<td>Competence</td>
<td>9</td>
<td>2.63</td>
<td>0.72</td>
<td>2.86</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>2.51</td>
<td>0.73</td>
<td>2.81</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>2.73</td>
<td>1.04</td>
<td>2.98</td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>2.60</td>
<td>0.74</td>
<td>2.89</td>
</tr>
<tr>
<td>Morality</td>
<td>8</td>
<td>3.03</td>
<td>0.53</td>
<td>2.85</td>
</tr>
<tr>
<td></td>
<td>9</td>
<td>2.82</td>
<td>0.52</td>
<td>2.65</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>2.89</td>
<td>0.55</td>
<td>2.77</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>2.83</td>
<td>0.58</td>
<td>2.62</td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>2.90</td>
<td>0.54</td>
<td>2.72</td>
</tr>
<tr>
<td>Close</td>
<td>8</td>
<td>3.11</td>
<td>0.68</td>
<td>3.16</td>
</tr>
<tr>
<td>Friendships</td>
<td>9</td>
<td>3.18</td>
<td>0.68</td>
<td>3.02</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>3.25</td>
<td>0.62</td>
<td>3.12</td>
</tr>
<tr>
<td></td>
<td>11</td>
<td>3.32</td>
<td>0.58</td>
<td>3.11</td>
</tr>
<tr>
<td></td>
<td>All</td>
<td>3.20</td>
<td>0.65</td>
<td>3.08</td>
</tr>
</tbody>
</table>

* Table 12 continued overleaf...
## Major Research Project

### Table 13: Mean Scores for the Diabetic Group on the Seven Self-esteem Subscales with Results of t-tests for Effects of Sex

<table>
<thead>
<tr>
<th>SUBSCALE</th>
<th>FEMALES</th>
<th>MALES</th>
<th>TEST RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean s.d.</td>
<td>Mean s.d.</td>
<td>t</td>
</tr>
<tr>
<td>Global self-worth</td>
<td>3.17 0.663</td>
<td>2.99 0.642</td>
<td>0.755</td>
</tr>
<tr>
<td>Scholastic Competence</td>
<td>2.69 0.782</td>
<td>2.45 0.650</td>
<td>0.938</td>
</tr>
<tr>
<td>Social Competence</td>
<td>2.77 0.986</td>
<td>2.81 0.687</td>
<td>-0.139</td>
</tr>
<tr>
<td>Athletic Competence</td>
<td>2.43 0.582</td>
<td>2.55 0.590</td>
<td>-0.565</td>
</tr>
<tr>
<td>Morality</td>
<td>2.88 0.507</td>
<td>2.81 0.554</td>
<td>0.331</td>
</tr>
<tr>
<td>Close Friendship</td>
<td>3.25 0.713</td>
<td>3.19 0.541</td>
<td>0.287</td>
</tr>
<tr>
<td>Physical Appearance</td>
<td>2.77 0.730</td>
<td>2.93 0.738</td>
<td>-0.606</td>
</tr>
</tbody>
</table>

Comparisons between diabetic and non-diabetic children

To investigate whether diabetic children differed in self-esteem from the matched non-diabetic comparison group, the subscale scores for each group were compared...
using t-tests. There were no significant differences between the groups on any of the self-esteem subscales (see Table 14).

### Table 14: Results of Comparisons between Diabetic and Non-diabetic Participants’ Scores on the Self-esteem Scales

<table>
<thead>
<tr>
<th>SUBSCALE</th>
<th>t value</th>
<th>Degrees of freedom</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global self-worth</td>
<td>0.000</td>
<td>60</td>
<td>1.000</td>
</tr>
<tr>
<td>Scholastic Competence</td>
<td>1.149</td>
<td>60</td>
<td>0.255</td>
</tr>
<tr>
<td>Social Competence</td>
<td>1.690</td>
<td>52.99</td>
<td>0.970</td>
</tr>
<tr>
<td>Athletic Competence</td>
<td>1.732</td>
<td>60</td>
<td>0.088</td>
</tr>
<tr>
<td>Morality</td>
<td>-0.337</td>
<td>60</td>
<td>0.737</td>
</tr>
<tr>
<td>Close Friendships</td>
<td>0.805</td>
<td>60</td>
<td>0.424</td>
</tr>
<tr>
<td>Physical Appearance</td>
<td>-0.552</td>
<td>60</td>
<td>0.583</td>
</tr>
</tbody>
</table>

**Dieting Behaviour**

There were two separate measures of dieting behaviour. The first was based on parental report. Parents answered seven questions about their child’s dieting behaviour, and these were summed to give a total dieting behaviour score (this was normally distributed) which could range from 0 to 14. The second was a self-report measure, where children answered the question “Have you ever been on a diet to lose weight?”.

**Non-diabetic group**

Table 15 shows the scores on the dieting behaviour scale and the number of children who reported having been on a diet. The mean dieting behaviour score for females was 1.59 (s.d. = 1.18, range: 0 - 5) and for males 1.56 (s.d. = 1.22, range: 0 - 5). No main effects were found for sex (F = 0.008, df = 1, 157, p = 0.930) or age (F = 0.437, df = 3, 157, p = 0.727) nor was there any sex by age interaction effect (F = 1.545, df = 3, 157, p = 0.205).
Equally, there were no significant effects of sex or age in the number of children who reported that they had been on a diet ($\chi^2 = 0.028$, df = 1, $p = 0.867$ and $\chi^2 = 2.631$, df = 3, $p = 0.452$ respectively).

### Table 15: Dieting Behaviour Scores and Numbers on a Diet in the Non-diabetic Group

<table>
<thead>
<tr>
<th>AGE</th>
<th>FEMALES</th>
<th></th>
<th></th>
<th>MALES</th>
<th></th>
<th></th>
<th>BOTH SEXES</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (s.d.)</td>
<td>% on diet</td>
<td></td>
<td>Mean (s.d.)</td>
<td>% on diet</td>
<td></td>
<td>Mean (s.d.)</td>
<td>% on diet</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>n on diet</td>
<td></td>
<td>n</td>
<td>n on diet</td>
<td></td>
<td>n</td>
<td>n on diet</td>
<td></td>
</tr>
<tr>
<td>Eight</td>
<td>1.90 (1.26)</td>
<td>13.6%</td>
<td></td>
<td>1.33 (0.88)</td>
<td>19.4%</td>
<td></td>
<td>1.69 (1.15)</td>
<td>16.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>21</td>
<td>6</td>
<td></td>
<td>13</td>
<td>6</td>
<td></td>
<td>34</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Nine</td>
<td>1.38 (1.05)</td>
<td>12.7%</td>
<td></td>
<td>1.76 (1.28)</td>
<td>16.7%</td>
<td></td>
<td>1.60 (1.19)</td>
<td>15.0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>29</td>
<td>7</td>
<td></td>
<td>38</td>
<td>12</td>
<td></td>
<td>67</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td>Ten</td>
<td>1.74 (1.28)</td>
<td>12.7%</td>
<td></td>
<td>1.39 (1.34)</td>
<td>6.8%</td>
<td></td>
<td>1.57 (1.31)</td>
<td>9.6%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>7</td>
<td></td>
<td>23</td>
<td>4</td>
<td></td>
<td>49</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>Eleven</td>
<td>0.75 (0.96)</td>
<td>16.7%</td>
<td></td>
<td>1.33 (0.58)</td>
<td>0%</td>
<td></td>
<td>1.0 (0.82)</td>
<td>8.3%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4</td>
<td>2</td>
<td></td>
<td>3</td>
<td>0</td>
<td></td>
<td>7</td>
<td>2</td>
<td></td>
</tr>
<tr>
<td>ALL AGES</td>
<td>1.59 (1.18)</td>
<td>13.3%</td>
<td></td>
<td>1.56 (1.22)</td>
<td>12.6%</td>
<td></td>
<td>1.58 (1.20)</td>
<td>12.9%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>80</td>
<td>22</td>
<td></td>
<td>77</td>
<td>22</td>
<td></td>
<td>157</td>
<td>44</td>
<td></td>
</tr>
</tbody>
</table>

Diabetic group

Table 16 shows the scores on the dieting behaviour scale and the number of children who reported having been on a diet for the diabetic group and non-diabetic comparison group. In the diabetic group, the mean dieting behaviour score for females was 3.17 (s.d. = 1.11, range: 2 - 5) and for males 3.00 (s.d. = 2.21, range: 0 - 9). There was no difference between males and females on this measure ($t = 0.240$, df = 27, $p = 0.812$).

One female (7.7%) and five males (27.8%) said they had been on a diet, but the difference between the sexes was not significant (FI $p = 0.176$), probably due to the small sample size.
### Table 16: Dieting Behaviour Scores and Number on a Diet in the Diabetic Group and Comparison Group

<table>
<thead>
<tr>
<th></th>
<th>MEAN DIETING BEHAVIOUR SCORE</th>
<th>s.d.</th>
<th>n</th>
<th>ON A DIET</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>%</td>
</tr>
<tr>
<td>Female Diabetics</td>
<td>3.17</td>
<td>1.11</td>
<td>12</td>
<td>7.7%</td>
</tr>
<tr>
<td>Male Diabetics</td>
<td>3.00</td>
<td>2.21</td>
<td>17</td>
<td>27.7%</td>
</tr>
<tr>
<td>All Diabetics</td>
<td>3.07</td>
<td>1.53</td>
<td>29</td>
<td>19.4%</td>
</tr>
<tr>
<td>Comparison Group</td>
<td>1.53</td>
<td>1.13</td>
<td>31</td>
<td>16.7%</td>
</tr>
</tbody>
</table>

#### Comparison between diabetic and non-diabetic children

There was no difference between diabetic and non-diabetic children in the number who reported having been on a diet to lose weight ($\chi^2 = 0.075$, df = 1, $p = 0.785$), but the parents of diabetic children reported significantly higher dieting behaviour scores in their children than the parents of non-diabetic children ($t = -4.124$, df = 59, $p <0.0001$). This difference may reflect the presence of questions that would be affected by diabetes, as well as by weight-management (i.e. questions referring to keeping a careful track of what one has eaten, and cutting out sweets and chocolate). To test this hypothesis, total scores were calculated for the five dieting behaviour questions that were not influenced by having diabetes (this was normally distributed after removal of one outlier, and scores could range from 0 to 10). There was no difference between the diabetic and non-diabetic comparison groups on this measure ($t = 1.757$, df = 57, $p = 0.084$).

#### Summary of Section 1

Significant differences were found between age groups on the Modified ChEAT, with younger children scoring more highly than older children. In contrast, no age differences were found for body satisfaction, BMI, self-esteem or dieting behaviour. In relation to the hypothesis that compared to males, females would have more negative eating attitudes, dieting behaviour and body dissatisfaction, there were no significant sex differences in either the diabetic or non-diabetic groups in Modified ChEAT scores, or in parental reported or child reported dieting behaviour. However,
females were more likely than males to report wanting to be thinner on the body satisfaction measure. In addition, compared to males, females had lower self-esteem scores regarding their Physical Appearance and Athletic Competence.

It had also been hypothesised that compared to non-diabetic children, diabetic children would report more negative eating attitudes, dieting behaviour and body dissatisfaction. There were no differences between diabetic and matched non-diabetic participants on Modified ChEAT scores, dieting behaviour scores or self-esteem scores. However the diabetic group were more likely than the non-diabetic group to want to be thinner and had higher BMI.
Section 2: Relationships between Eating Attitudes, Dieting Behaviour and Self-esteem

The second set of analyses aimed to investigate the relationships between eating attitudes, dieting behaviour and self-esteem. These analyses tested hypothesis 3, that there will be a positive relationship between children's negative eating attitudes and their dieting behaviour, and this relationship will be moderated by self-esteem. For the sake of clarity, these analyses were conducted for the non-diabetic group only.

The relationships between variables were investigated in two ways. Firstly, groups of children divided according to Modified ChEAT score were compared. Secondly, correlations (Pearson's or Spearman's as appropriate) were used to investigate relationships between the Modified ChEAT and other normally distributed scaled variables.

Comparisons between High and Low Modified ChEAT Groups
Participants were divided into High (n = 41) and Low (n = 291) Modified ChEAT groups according to whether they scored above or below the cut-off on the Modified ChEAT. Table 17 shows the results of the comparisons between these two groups.

The High Modified ChEAT group were significantly more likely to have been on a diet, they had lower Global Self-worth and Physical Appearance scores and they had higher BMI than the Low Modified ChEAT group. The High Modified ChEAT group were more likely than the Low Modified ChEAT group to be unsatisfied with their bodies.

There were no significant differences between the two Modified ChEAT groups on the dieting behaviour score, the self-esteem scales Scholastic Competence, Social Competence, Athletic Competence, Morality and Close Friendship, and the body satisfaction categories “Want to be thinner” vs “Want to be fatter”.

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Table 17: Summary of the Comparisons between High and Low Modified ChEAT Groups

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>MODIFIED ChEAT GROUP</th>
<th>TEST RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LOW (n = 291)</td>
<td>HIGH (n = 41)</td>
</tr>
<tr>
<td>Parental reported dieting behaviour Mean (s.d.)</td>
<td>1.56 (1.21)</td>
<td>1.67 (1.07)</td>
</tr>
<tr>
<td>Child ever on a diet? Number yes (% yes)</td>
<td>23 (8.1%)</td>
<td>17 (38.6%)</td>
</tr>
<tr>
<td>Self-esteem Mean (s.d.)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global Self-worth</td>
<td>2.97 (0.65)</td>
<td>2.61 (0.83)</td>
</tr>
<tr>
<td>Scholastic Competence</td>
<td>2.64 (0.58)</td>
<td>2.42 (0.73)</td>
</tr>
<tr>
<td>Social Competence</td>
<td>2.98 (0.60)</td>
<td>2.77 (0.77)</td>
</tr>
<tr>
<td>Athletic Competence</td>
<td>2.73 (0.73)</td>
<td>2.83 (0.82)</td>
</tr>
<tr>
<td>Morality</td>
<td>2.82 (0.55)</td>
<td>2.72 (0.71)</td>
</tr>
<tr>
<td>Close Friendship</td>
<td>3.16 (0.63)</td>
<td>2.91 (0.88)</td>
</tr>
<tr>
<td>Physical Appearance</td>
<td>2.75 (0.71)</td>
<td>2.29 (0.83)</td>
</tr>
<tr>
<td>Body satisfaction n (% of group)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Want to be thinner</td>
<td>118 (42%)</td>
<td>20 (51%)</td>
</tr>
<tr>
<td>Satisfied</td>
<td>121 (43%)</td>
<td>9 (23%)</td>
</tr>
<tr>
<td>Want to be fatter</td>
<td>44 (15%)</td>
<td>10 (26%)</td>
</tr>
<tr>
<td>BMI Mean (s.d.) n</td>
<td>17.2 (2.93)</td>
<td>20.1 (3.94)</td>
</tr>
</tbody>
</table>

Note: p values in bold indicate significant results (p < 0.05) and p values marked with a * remain significant after using the Bonferroni correction for multiple comparisons on the self-esteem subscales.

Correlations with Modified ChEAT Scores

Table 18 shows the results of the correlations between Modified ChEAT scores and the other variables. Pearson or Spearman correlation statistics are quoted as appropriate.
Table 18: Summary of Correlations with Modified ChEAT Score

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>CORRELATION WITH MODIFIED ChEAT</th>
<th>n</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pearson / Spearman correlation coefficient</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parental reported dieting behaviour</td>
<td>r = 0.192</td>
<td>180</td>
<td>0.010</td>
</tr>
<tr>
<td>Child ever on a diet?</td>
<td>p = 0.349</td>
<td>358</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Self-esteem</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Global Self-worth</td>
<td>r = -0.277</td>
<td>351</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>Scholastic Competence</td>
<td>r = -0.178</td>
<td>350</td>
<td>0.001*</td>
</tr>
<tr>
<td>Social Competence</td>
<td>r = -0.126</td>
<td>350</td>
<td>0.018</td>
</tr>
<tr>
<td>Athletic Competence</td>
<td>r = -0.074</td>
<td>352</td>
<td>0.167</td>
</tr>
<tr>
<td>Morality</td>
<td>r = -0.095</td>
<td>351</td>
<td>0.076</td>
</tr>
<tr>
<td>Close Friendship</td>
<td>r = -0.126</td>
<td>351</td>
<td>0.019</td>
</tr>
<tr>
<td>Physical Appearance</td>
<td>r = -0.278</td>
<td>349</td>
<td>&lt;0.0001*</td>
</tr>
<tr>
<td>Body satisfaction</td>
<td>p = -0.034</td>
<td>350</td>
<td>0.521</td>
</tr>
<tr>
<td>BMI</td>
<td>r = 0.163</td>
<td>128</td>
<td>0.066</td>
</tr>
</tbody>
</table>

Note: p values in bold indicate significant results (p < 0.05) and p values marked with a * remain significant after using the Bonferroni correction for multiple comparisons on the self-esteem subscales.

The Modified ChEAT was significantly positively correlated with both measures of dieting behaviour and significantly negatively correlated with the self-esteem subscales of Global Self-worth, Scholastic Competence and Physical Appearance.

The Modified ChEAT score did not correlate significantly with BMI, the self-esteem subscales Social Competence, Athletic Competence Morality and Close Friendship, or the body satisfaction category.

Possible Moderating Variables on the Relationship between Negative Eating Attitudes and Dieting Behaviour

The effects of moderating variables were tested in two ways. Firstly, the High Modified ChEAT group was split into groups based on self-esteem scores, or whether or not they had been on a diet. Secondly, for scaled variables, partial correlations were conducted.


**Self-Esteem**

It was hypothesised that children who had high Modified ChEAT scores would be more likely to diet if they also had low self-esteem. The most important self-esteem subscales were thought to be Global Self-worth and Physical Appearance, since these were significantly associated with Modified ChEAT scores in both group comparisons and correlations.

In the High Modified ChEAT group, there was no difference in the numbers who had been on a diet between those scoring above or below the median Global Self-worth score (FI p = 0.387) or between those scoring above or below the median Physical Appearance score (FI p = 0.659). However, after controlling for Global Self-worth and Physical Appearance scores, the correlation between Modified ChEAT score and dieting behaviour score was no longer significant (r = 0.084, n = 145, p = 0.314).

**BMI**

The High Modified ChEAT group was divided according to whether their BMI fell above or below the median. There was no difference between the two BMI groups in the number who had been on a diet (FI p = 0.380). However, after controlling for BMI, the correlation between Modified ChEAT score and dieting behaviour score was no longer significant (r = 0.0999, n = 105, p = 0.306).

**Summary of Section 2**

Exploring relationships between the variables showed that children in the high Modified ChEAT category were more likely than those in the low category to have been on a diet and to be unsatisfied with their bodies. Compared to children in the low Modified ChEAT category, those in the high category had lower self-esteem scores on the Physical Appearance and Global Self-worth subscales. In the High Modified ChEAT category, differences in BMI or self-esteem could not account for why some children had been on a diet and others had not. In the whole group, however, BMI and self-esteem did seem to play a role in the relationship between Modified ChEAT scores and dieting behaviour scores.
Section 3: Relationships between Children’s Attitudes and Behaviour and their Parents’ Attitudes and Behaviour

For the third set of analyses, parental attitudes to eating and weight were investigated to explore hypothesis 4, that parents with negative eating attitudes will be more likely to have children who diet or have negative eating attitudes. Eating attitudes, dieting behaviour and body satisfaction in parents of non-diabetic and diabetic children were explored. The relationships between parental and child variables were investigated in two ways. Firstly, groups of children divided according to Modified ChEAT score or whether or not they had been on a diet were compared on their parents’ eating attitude scores. Secondly, correlations (Pearson’s or Spearman’s as appropriate) were used to investigate relationships between the Modified ChEAT and other normally distributed scaled variables.

Parents’ Scores on the Eating Attitudes Test (EAT)
Since the EAT is a clinical tool and the population is non-clinical, scores were non-normal, so a log transformation of EAT scores was used for ANOVA and t-tests.

Parents of the non-diabetic group
Mean scores on the EAT and percentage above the cut-off (>20) are shown in Table 19. There was no significant difference between male parents and female parents in mean score or in the percentage above the cut-off. The overall 3.2% of parents of non-diabetics scoring above the cut-off is less than the 7% reported in other studies (e.g. Garner, Olmstead, Bohr & Garfinkel, 1982) and may suggest that high-scoring parents chose not to return their questionnaires.
Parents of the diabetic group

Mean scores on the EAT and percentage above the cut-off (≥20) are shown in Table 20. The number of male parents was too small to meaningfully compare differences according to sex. The overall 10.0% of parents of diabetic children scoring above the cut-off is more comparable to the 7% reported in other studies (e.g. Garner, Olmstead, Bohr & Garfinkel, 1982).

Comparisons between parents of diabetic and non-diabetic children

When parents of diabetic children were compared to the matched sample of parents of non-diabetic children, there was no significant difference between groups in the mean EAT score (t = -0.210, df = 59, p = 0.835) or in percentage above the cut-off (FI p = 0.354).
Parental Dieting Behaviour and Body Satisfaction

There were two measures of parental dieting behaviour. Firstly, parents were asked whether they had ever been on a diet. Secondly, parents answered seven questions about their own dieting behaviour, and these were summed to give a total dieting behaviour score (this was normally distributed) which could range from 0 to 14. Body satisfaction was measured using a visual analogue scale (0 – 100). These scores fell in a bimodal distribution for the parents of non-diabetic children and were normally distributed for parents of diabetic children, so a non-parametric test (Mann-Whitney U test) was used to compare groups.

Parents of the non-diabetic group

57.7% of parents reported having been on a diet and the mean dieting behaviour score was 4.30 (s.d. = 2.45, range: 0 - 12). There was no difference between males and females on the dieting behaviour score (t = -0.495, df = 153, p = 0.621), but females were more likely than males to have been on a diet (Fisher’s p = 0.015). The mean body satisfaction score was 56.2 (s.d. = 28.49, range: 0 - 100) and there was no difference between males and females on this measure (t = -1.160, df = 156, p = 0.248).

Parents of the diabetic group

53.1% of the parents said they had been on a diet and the mean dieting behaviour score was 3.75 (s.d. = 2.55, range: 0 - 10). The mean body satisfaction score was 51.1 (s.d. = 27.03, range: 0 – 100). The number of male parents was too small to meaningfully compare differences according to sex.

Comparison between parents of diabetic and non-diabetic children

There was no difference between parents of diabetic children and parents of non-diabetic children in the number of parents who had been on a diet ($\chi^2 = 0.067, df = 1, p = 0.795$) on the parents’ dieting behaviour scores ($t = 1.27, df = 59, p = 0.209$) or on the body satisfaction scores (Mann-Whitney U = 369.5, n = 61, p = 0.168).
Relationships between Parental and Child Variables

Parental attitudes and child attitudes
It was hypothesised that there would be a positive relationship between parental and child eating attitudes. There was no difference between the High and Low Modified ChEAT groups in their parents’ EAT scores (t = 1.512, df = 150, p = 0.133). However, there was a significant positive correlation between parental EAT scores and children’s Modified ChEAT scores (r = 0.174, df = 152, p = 0.032).

Parental attitudes and child behaviour
It was also hypothesised that children with parents who had high EAT scores would diet more than children with parents with low EAT scores. Parents of children who had been on a diet had significantly higher EAT scores than parents of children who had not been on a diet (t = -2.692, df = 154, p = 0.008), and there was a significant linear relationship between parents’ EAT scores and children’s dieting behaviour score (r = 0.165, df = 152, p = 0.042).

Possible Moderating Variables on the Relationship between Parental Eating Attitudes and Children’s Eating Attitudes and Dieting Behaviour
When BMI was partialled out from the correlation between EAT scores and Modified ChEAT scores, the correlation was no longer significant (r = 0.1687, n = 105, p = 0.082). However, when BMI was entered as a covariate into ANOVA, there was still a significant difference between children who had been on a diet and those who had not in their parents’ EAT scores (F = 4.804, df = 1, 108, p = 0.031).

Summary of Section 3
Female parents were more likely to have been on a diet than male parents. There were no differences on any of the measures between parents of children with diabetes and parents of children without diabetes. The analyses showed that as expected, parents’ EAT scores were related both to children’s Modified ChEAT scores and their dieting behaviour. The relationship between EAT scores and parental reports of children’s dieting behaviour could be partially explained by children’s BMI, but the relationship between EAT scores and children’s report of dieting behaviour could not.
DISCUSSION

The study was successful in its overall aim to extend existing studies of eating attitudes and dieting behaviour from adolescents to pre-adolescents. Few studies have explored eating attitudes in young children and this was the first large-scale study of these variables in British eight to eleven year-old children and their parents. The study showed eating- and weight-related concerns to be relatively common in younger children. Nearly 13% of children in the study reported having been on a diet, 12% scored over the cut-off on the ChEAT and 60% were dissatisfied with their body. Since dieting in this age-group can have damaging physical effects (Mallik, 1983; Pugliese et al, 1983), as well as being a potential risk factor for the later development of eating disorders (Patton et al, 1990), these findings are concerning.

Age Differences on the ChEAT

In order to measure eating attitudes in pre-adolescents, a modified version of the ChEAT was used. Modifications were made to clarify questions that may be difficult for younger children to understand and which previous investigators suggested may have inflated younger children’s ChEAT scores. In addition, the researcher checked individually with each child that they had understood particularly complex questions and provided extra assistance in answering questions when this was requested. Despite these changes eight and nine year-olds again scored higher than older children, in line with previous investigations (Maloney et al, 1989; Sasson et al, 1995; Rolland et al, 1997), and these age differences were seen despite there being no age-related differences in BMI. Anecdotally, children of all ages reported finding the questions quite easy to answer, and inter-item reliability of the Modified ChEAT was good even for eight and nine year olds ($\alpha = 0.72$). Therefore, it seems unlikely that younger children misunderstood the ChEAT. Furthermore, there were no age-differences on any other measure used in the study. Had younger children had difficulty in understanding the language used in the questionnaires, it might be expected that there would be age differences on more than one measure. Therefore young children’s higher scores might either reflect higher levels of negative eating
attitudes, or suggest that the ChEAT measures something other than eating attitudes in younger children.

Studies of clinical populations do not suggest that younger children are more prone to eating disorders (e.g. Lask & Bryant-Waugh, 1992) and it seems more likely that prevalence rates might rise with age, so it would be expected that younger children have lower rates of negative eating attitudes. This suggests that young children’s higher ChEAT scores actually indicate that the scale is measuring something else in young children. Higher scores on the Modified ChEAT could reflect a developmental stage of preoccupation with food (for example, 15% of eight year-olds are “faddy eaters”, Linscheid, Rasnake & Budd, 1995). There is some evidence from the present study to support this possibility. One of the questions on the Modified ChEAT on which younger children scored higher than older children was “I think about food a lot of the time”, and younger children also scored higher than older children on the “Food Preoccupation” factor of the ChEAT. It would be interesting to explore whether younger children have a preoccupation with food that represents a benign interest in food and eating as part of a natural developmental stage. Studies could use qualitative interviews to access behaviour or thoughts relevant to food preoccupation but unrelated to eating disorder symptomatology, and note whether food preoccupation is more common in certain age-groups. If so, this would suggest that the ChEAT may be a poor measure of negative eating attitudes relevant to eating disorders in the under-ten age group, since scores may be inflated by food preoccupation. It is also possible that children’s answers to questions concerning food preoccupation reflected a cognitive prompting effect, where young children’s answers were affected by the actual process of filling in the questionnaire. In this way, young children might have shown more food preoccupation, because they judged their level of interest in food based on their “here and now” experience, whereas older children might have been more able to judge their interest in food from a “meta-position” less affected by the experience of answering the questionnaire.

However, food preoccupation may not fully explain younger children’s higher scores on the ChEAT. Younger children also scored significantly more highly on two other individual items, “I feel that others pressure me to eat” and “I try to stay away from
foods such as breads, potatoes and rice” and on the “Restricting and Purging” factor, suggesting that more research is needed to determine exactly why young children score highly on the ChEAT.

Hypotheses
Generally, there was mixed evidence for the experimental hypotheses of this study, and each of the four hypotheses were partly supported. Evidence for the hypotheses is reviewed below.

Hypothesis 1: Compared to boys, preadolescent girls will have more negative eating attitudes, lower body satisfaction, and higher levels of dieting behaviour.
There was some evidence to support the hypothesis that girls would be more at risk of eating-related concerns than boys. There was no difference between the sexes in negative eating attitudes, but there were differences between the sexes in body satisfaction and Physical Appearance esteem. Girls had lower Physical Appearance esteem than boys and were more likely to want to be thinner than their current figure, whilst boys had higher Athletic Competence esteem than girls and were more likely to want to be fatter than their current figure. This suggests that even at a young age girls are beginning to be dissatisfied with the way they look. Boys at a young age are also dissatisfied with their appearance, wanting to be larger. Thus, whilst both boys and girls in these age groups are dissatisfied with their body shape, this dissatisfaction may be of more relevance to later eating disorders for girls. Girls and boys will both naturally become larger as they grow and, particularly at puberty, girls will become more rounded in body shape. Boys will therefore grow toward their ideal figure, whilst girls will grow away from their ideal figure, so the body dissatisfaction seen in the present study may have more lasting and harmful effects for girls.

The finding that there were no sex differences in Modified ChEAT scores is consistent with other investigations which have found that sex differences on the ChEAT do not emerge until around fourteen years of age (Sasson et al, 1995). It is possible that the ChEAT measures more sophisticated attitudes (in comparison to the Body Image Assessment Procedure and Physical Appearance esteem subscale), which
have yet to fully develop in the present group. In addition, as discussed above, there is evidence to suggest that in younger children, the ChEAT may not be a reliable measure of eating attitudes, so that sex differences may have been obscured in the current sample. However, analyses of just the ten and eleven year-olds also showed no sex differences.

There were no differences between males and females in dieting behaviour. This result is surprising, since girls were more likely than boys to want a smaller body size as evidenced by body satisfaction scores. However, as noted above, as children grow, boys will move towards their ideal body figure whilst girls will move away from theirs. It is possible that later growth may trigger dieting, and sex differences in dieting behaviour may only become apparent in older age groups. It is also probable that as children mature, they gain more responsibility for their own food intake, and so are more able to go on a diet without parental knowledge or support\(^9\). The suggestion that differences in dieting behaviour emerge in older children is supported by Sasson et al (1995) who found that in children younger than 12 there were no differences between the sexes in dieting behaviour, but in the over 12 age-group, girls dieted more than boys.

Another factor relevant to the onset of dieting in slightly older children may be the increased influence of the peer group. As they get older, and especially in adolescence, children become less influenced by their parents and more influenced by their peers (Meeus & Dekovic, 1996; Zhang et al, 1997). If dieting is discussed more and is more acceptable in groups of girls than boys, then as girls mature they might be more influenced by friends to diet and so sex differences in dieting behaviour may emerge.

\(^9\) It had been hoped that children's control over their own food intake could be measured in this study, but children seemed to have difficulty with the control questions, making the measure unreliable. The food control measure was not therefore included in the analyses. Further research could explore this area, either using qualitative methods, or by developing a detailed and reliable measure of control over food intake within families.
Hypothesis 2: Compared to children without diabetes children with diabetes will have more negative eating attitudes, lower body satisfaction, and higher levels of dieting behaviour.

Little evidence was found to support this hypothesis. The diabetic children did not show elevated Modified ChEAT scores or more dieting behaviour, although diabetic children were more likely to be dissatisfied with their body than non-diabetic children. However, diabetic children also had higher BMI than non-diabetic children. It is not possible to infer causal relationships from a cross-sectional study, so it is possible that diabetic children’s higher BMI could be the result of body dissatisfaction and repeated attempts to diet. However, since weight gain is a common side-effect of diabetes control (Steel, Lloyd, Young & McIntyre, 1990) it is more likely that body dissatisfaction was the result of diabetic children’s higher BMI. Prospective studies measuring BMI and dieting from the onset of diabetes would enable researchers to determine whether high BMI does result in body dissatisfaction.

Previous research with older participants has shown that people with diabetes do show more negative eating attitudes than people without diabetes (e.g. Kahn & Montgomery, 1996). There may be several reasons why the present study has not replicated these differences with younger participants. Firstly, the present study had a small sample of diabetic children and replication with a larger sample size may show that differences do exist that were not apparent in the present sample. Secondly, the present participants could be relatively early on in the course of their illness (mean time since diagnosis = 32 months, s.d. = 19.4 months, range = 6 – 69 months) compared to older children and adults used in other studies. For example, in the teenage sample used by Kahn & Montgomery (1996), mean time since diagnosis ranged from 5.7 years in the 15 to 16 year-olds, to 10.5 years in the 19 to 20 year-olds. It is possible that over-concern with food and weight appears later in the course of the illness, because of dissatisfaction with the continuing need to strictly regulate and monitor exercise and food intake. However, Steel et al (1990) found that for adult participants, eating attitudes became more negative during the first year of illness, so this explanation cannot fully account for the results obtained, although children’s increasing responsibility for their own diabetes care as they get older may contribute to such dissatisfaction. Finally, as previously stated when considering body
dissatisfaction, negative eating attitudes might develop because pre-adolescents with diabetes have higher BMI than their non-diabetic peers. After several years of being heavier than their peers and experiencing body dissatisfaction, negative eating attitudes might begin to develop, and long-term prospective studies could be used to look for these changes over time. Unfortunately, the present sample of diabetic children was too small to test the hypothesis that negative eating attitudes might be more apparent at a later age, but it is possible that a large sample of ten and eleven year-old diabetic children might have had more negative eating attitudes than their non-diabetic peers.

Hypothesis 3: There will be a positive relationship between children’s negative eating attitudes and their dieting behaviour, and this relationship will be moderated by self-esteem.

There was evidence for a positive relationship between children’s negative eating attitudes and dieting behaviour. Children who scored above the cut-off point on the Modified ChEAT were more likely to be dissatisfied with their body, and more likely to say they had been on a diet to lose weight. The results indicate that some children even from a young age are motivated to diet. The majority of children who reported they had been on a diet had done so without their parents’ knowledge. In the whole sample, there were 50 children who said they had been on a diet to lose weight. Of the children whose parents returned a questionnaire, 27 children said they had been on a diet, but only one of their parents said their child had been on a diet (the child concerned was diabetic). This difference between parents and children could reflect children’s misunderstanding of the term “diet” (e.g. children reporting they had been on a diet when they had only made very minor changes in their eating habits). In future studies, qualitative data could be gathered on children’s understanding of dieting, or the use of an objective measure of food intake would allow children to be classified as dieters and non-dieters in a more meaningful way. In the present study, it had been hoped that diary sheets could be used as an objective measure of daily calorie intake, but the data obtained were of insufficient quality to enable these analyses to be undertaken.
The difference between parental and child reports of dieting behaviour could alternatively reflect parents’ unwillingness to admit their child had been on a diet to lose weight. Firstly, since it is known that dieting in children can be harmful to health, parents’ answers on the questionnaires could have been influenced by social desirability bias, leading them to under-report their children’s dieting. Secondly, parents’ answers could have been influenced by parental denial of children’s dieting behaviour or by parents labeling their children’s eating patterns as something other than dieting (e.g. “healthy eating”). Alternatively, the present results could reflect parents’ lack of knowledge of their children’s diets, and suggest that children are motivated to hide dieting behaviour from their parents, possibly because they are aware that such behaviour would not be supported by parents. This suggests that some children, even as young as eight years old, may have enough control over their choice of food to be able to “diet” without their parents’ involvement. Again, studies of control over food intake in families could investigate this hypothesis.

Some cognitive models of eating disorders propose that low self-esteem is a crucial mediating factor for the development of eating disorders (e.g. Fairburn et al, 1999; Cooper & Turner, 2000). Self-esteem is then thought to account for the fact that eating disorders are relatively rare, whilst negative eating attitudes and dissatisfaction with body-shape are widespread in the general population of women (e.g. Szmulker & Patton, 1995; Heatherton et al, 1995). In conjunction with negative eating attitudes, low self-esteem is thought to determine which people with negative eating attitudes go on to diet, and which dieters go on to develop eating disorders (Cooper & Turner, 2000). The present study made an initial attempt to look at the role of self-esteem in children’s dieting, and hypothesised that any positive relationship between negative eating attitudes and dieting behaviour would be moderated by self-esteem. Evidence for this hypothesis was mixed. In the group with High Modified ChEAT scores, there was no evidence for a buffering effect of self-esteem on dieting behaviour. However, in the whole group, the linear relationship between negative eating attitudes and parental report of children’s dieting behaviour could be accounted for by children’s self-esteem scores. The cognitive theories of eating disorders and self-esteem have not been properly tested in children, and research should focus on extending initial results found by Cooper & Turner (2000) to adolescents and children. In the whole group
dieting children had higher Modified ChEAT scores than non-dieting children, so it is interesting that the combination of negative eating attitudes (above the Modified ChEAT cut-off) and low self-esteem did not make dieting more likely in the high Modified ChEAT group. Perhaps dieting in the younger age-group is triggered by factors other than low self-esteem, for example peer group attitudes (e.g. it might be fashionable to diet) or seeing dieting behaviour in the home, and negative eating attitudes are a result of dieting behaviour, not a precursor.

Hypothesis 4: Parents with negative eating attitudes will be more likely to have children who diet or have negative eating attitudes.
There was evidence for this hypotheses. Parents’ levels of negative eating attitudes were positively related to their children’s levels of negative eating attitudes and children whose parents had more negative eating attitudes were more likely to diet. It is likely that children pick up attitudes from observing and listening to their parents, but it is also possible that parents who have negative eating attitudes may value thinness highly and may therefore implicitly or explicitly encourage their children to diet or to remain thin. The fact that only one of the parents who responded to the questionnaire was aware that their child had been on a diet suggests parents may unknowingly be influencing their children to diet. It may also be possible that eating attitudes and behaviour run in families because particular families have problems with their weight, so that body shape is the cause of both the parent’s and the child’s negative eating attitudes. The present study could not assess causality, but there was a relationship between BMI, eating attitudes and dieting. Of those children who had negative eating attitudes, those who had been on a diet had higher BMI than those who had not been on a diet. In the whole sample, when BMI was partialled out of correlations, the positive correlations between parents’ negative eating attitudes and children’s attitudes were no longer significant.
Limitations

Firstly, it must be noted that in the present study, eating attitudes and dieting behaviour were measured in a non-clinical sample, so extrapolating from the present results to cases of eating disorders must be done with caution.

Great care was taken in the present study to ensure participants understood that their responses were confidential, and to encourage honesty in responses. However, as with any self-report based study, it is possible that the present results were distorted by social desirability bias, especially since a large part of this study took place in a classroom setting.

The generalisability of the present findings depends on how representative the present sample was. Firstly, the schools and hospitals used in the present study were in areas predominantly populated by affluent white people. The present sample was therefore quite representative of the Surrey area, but results might not be generalisable to areas with a different socio-economic composition. Secondly, comparing the responses of parents of non-diabetic children to parents of diabetic children and to previous research which has not used an opt-out procedure (e.g. Garner et al, 1982), there was some evidence that parents who chose not to return questionnaires might have been those with the most disordered eating attitudes. However, very few children chose not to participate in the study, suggesting that the child sample was more representative of the population than the parent sample. In addition, few diabetic children and their parents chose not to participate, so it could be assumed that the present sample was representative of diabetic children of this age generally.

Some measures used in the present study were limited by their mode of collection, for example, measures of BMI and children’s dieting behaviour relied on parental report. BMI in particular could have been unreliable, since some parents may only have estimated heights and weights. Reliability would be increased by weighing and measuring children as part of the study, but this was not possible in the classroom setting of the present study, and might also have proved embarrassing or upsetting for participants. It would also have been useful to ask parents to state their own height and weight. If BMI was accurately measured for a larger sample of both parents and
children, it might be possible to explore the relationship between parental and child BMI and eating attitudes.

As previously discussed, results showed that it is not clear whether the ChEAT actually measures eating attitudes in young children, which limits the interpretation of the present results. In particular, the ChEAT cut-off point is quite arbitrary, since no follow-up investigations or clinical interviews of high-scoring children were conducted in the original development of the ChEAT (Maloney et al, 1988). The present study aimed to minimize this problem by comparing children’s mean scores on the Modified ChEAT as well as looking at whether participants fell above or below the cut-off point. More studies of the children who score highly on the ChEAT are needed to determine whether they might meet clinical criteria for eating disorders.

**Theoretical and Clinical Implications**

The present study has clear implications for future research and clinical practice. Firstly, the study suggests that the ChEAT may not be a reliable measure of eating attitudes relevant to eating disorders in younger children. This limits its use as a research tool until research can elucidate factors contributing to elevated ChEAT scores in eight and nine year-olds. Similarly, the ChEAT may be unreliable when used in clinical practice to classify young children as having “disordered” or “non-disordered” eating attitudes.

The present study indicated that negative eating attitudes and dieting behaviour are associated with a variety of factors, including self-esteem, parental attitudes and body esteem. These findings are consistent with models of eating disorders that propose a complex aetiology influenced by factors both internal to and external to the individual. Family therapy approaches are commonly and successfully used in the treatment of eating disorders (e.g. Dare & Eisler, 1995) and the present findings of links between parental attitudes and children’s behaviour suggests that family approaches may also be of use to treat children whose disrupted eating patterns do not meet full criteria for eating disorders.
The study did not show why some children with negative eating attitudes diet, and other children with negative eating attitudes do not diet. More research is needed to elucidate the protective factors that make dieting unlikely, since these are the factors which clinical intervention with children could aim to strengthen. Self-esteem was not shown in the present study to be a protective factor, but it is likely that parental control over food intake may have a role to play in preventing dieting. Parental attitudes and influence were also shown to be potentially important, and might be amenable to intervention. The present results support the idea that children of parents with negative eating attitudes are at increased risk of developing negative eating attitudes and behaviour, and suggest that parents with eating disorders or negative eating attitudes should be a priority for intervention. Intervention could aim to increase parental awareness of children’s dieting behaviour and parental awareness of the impact of their own eating attitudes on children’s attitudes and behaviour.

The findings from the diabetic group in the present study suggested that an increased focus on food in this age group (due to diabetes) did not lead to more dieting or to more negative eating attitudes. There was some evidence to suggest a link between high BMI and body dissatisfaction in the diabetic group, which if replicated might have implications for obese children. Prospective studies could explore the long-term effects of high BMI and body dissatisfaction, to determine if negative eating attitudes and dieting behaviour might emerge as a consequence of obesity. Since clinical psychology input into diabetes clinics tends to be scarce, information on the links between obesity and later disordered eating patterns could help clinical psychologists prioritize referrals.
REFERENCES


Appendix 1

Results of comparisons between parents of non-diabetic children who responded to the questionnaire and those who did not.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Responders n=158 (46.1%)</th>
<th>Non-responders n=185 (53.9%)</th>
<th>Test statistic</th>
<th>Deg. of freedom</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child on diet</td>
<td>Yes: 21 (13.3%)</td>
<td>Yes: 23 (12.4%)</td>
<td>$\chi^2 = 0.049$</td>
<td>1</td>
<td>0.825</td>
</tr>
<tr>
<td></td>
<td>No: 136 (86.1%)</td>
<td>No: 160 (86.5%)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Child’s sex</td>
<td>Males: 79 (50%)</td>
<td>Males: 97 (52.4%)</td>
<td>$\chi^2 = 0.202$</td>
<td>1</td>
<td>0.653</td>
</tr>
<tr>
<td></td>
<td>Females: 79 (50%)</td>
<td>Females: 88 (47.6%)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Child’s school</td>
<td>School 1: 56 (35.4%)</td>
<td>School 1: 59 (31.9%)</td>
<td>$\chi^2 = 3.871$</td>
<td>2</td>
<td>0.144</td>
</tr>
<tr>
<td></td>
<td>School 2: 41 (26%)</td>
<td>School 2: 36 (19.5%)</td>
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<td></td>
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<tr>
<td></td>
<td>School 3: 61 (38.6%)</td>
<td>School 3: 90 (48.6%)</td>
<td></td>
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</tr>
<tr>
<td>Child’s age</td>
<td>Eight: 35 (22.2%)</td>
<td>Eight: 42 (22.7%)</td>
<td>$\chi^2 = 5.237$</td>
<td>3</td>
<td>0.155</td>
</tr>
<tr>
<td></td>
<td>Nine: 67 (42.4%)</td>
<td>Nine: 61 (33.0%)</td>
<td></td>
<td></td>
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</tr>
<tr>
<td></td>
<td>Ten: 49 (31.0%)</td>
<td>Ten: 65 (35.1%)</td>
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<td></td>
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<tr>
<td></td>
<td>Eleven: 7 (4.4%)</td>
<td>Eleven: 17 (9.2%)</td>
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</tr>
<tr>
<td>Child’s ChEAT score</td>
<td>Mean = 8.2 s.d. = 7.08</td>
<td>Mean = 9.58 s.d. = 8.35</td>
<td>$t = 1.391$</td>
<td>330</td>
<td>0.165</td>
</tr>
<tr>
<td>Child’s global self-worth score</td>
<td>Mean = 2.93 s.d. = 0.70</td>
<td>Mean = 2.89 s.d. = 0.68</td>
<td>$t = -1.072$</td>
<td>330</td>
<td>0.285</td>
</tr>
</tbody>
</table>

10 Three children did not answer this question, one in the responders group, and two in the non-responders group, so percentages do not add up to 100%.
Appendix 2

Exercise and food control questionnaire.

Healthy Eating, Healthy Families Questionnaire

Thank you for filling in this questionnaire. Please listen carefully to each question as it is read out, and write your answer in the space provided. There are no right or wrong answers to these questions, and it is not a test. Please try to answer as honestly as possible. Your answers will be kept a secret. No-one will see them except the person who is reading out the questions. Not even your teacher or your parents will see your answers.

1. How old are you? .........................................
2. Are you a boy or a girl?  BOY / GIRL

3. How many times a week do you do PE or sport at school? Please put a ring round the right answer.
   - ONCE
   - TWICE
   - 3 TIMES
   - MORE THAN 3 TIMES

4. How many times a week do you do exercise or sport outside school? Please put a ring round the right answer.
   - ONCE
   - TWICE
   - 3 TIMES
   - MORE THAN 3 TIMES

5. Do you have to eat special foods or avoid some foods because of a medical condition? (like an allergy or an illness)  YES / NO
   If yes, what is the condition? ................................................................................................................................................

6. Have you ever been on a diet to lose weight?  YES / NO

7. Who chooses what you eat at mealtimes? Please put a ring round the right answer.
   - MUM / DAD Chooses
   - I HELP MUM / DAD CHOOSE
   - I CHOOSE ON MY OWN

8. If you want a snack between meals, what happens? Please put a ring round the right answer.
   - I ASK MUM OR DAD
   - I GET MY OWN SNACK WITHOUT ASKING

9. Who chooses what you eat for a snack? Please put a ring round the right answer.
   - MUM / DAD Chooses
   - I HELP MUM / DAD CHOOSE
   - I CHOOSE ON MY OWN

10. Are there any foods that you are only allowed to eat as a very special treat?  YES/NO
    What are they? ................................................................................................................................................

   PLEASE TURN TO THE NEXT PAGE
Appendix 3

Modified ChEAT

What do you think about food and exercise?
Please put a ring round the word which is closest to how often you do each of the things below.

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I eat lots of fruit and vegetables.</td>
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<tr>
<td>2. I am scared about being overweight.</td>
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<td>3. I stay away from eating when I am hungry.</td>
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<td>4. I think about food a lot of the time.</td>
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<td>5. I have gone on eating binges (eaten a huge amount) where I feel that I might not be able to stop.</td>
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<td>6. I cut my food into small pieces.</td>
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<td>7. I am interested in learning about healthy foods.</td>
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<td>8. I am aware of the energy (calorie) content in foods that I eat.</td>
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<td>9. I try to stay away from foods such as breads, potatoes and rice.</td>
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<td>10. I feel that others would like me to eat more.</td>
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<td>11. I vomit (I am sick) after I have eaten.</td>
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<td>12. I feel very guilty after I have eaten.</td>
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<td>Always</td>
<td>Very Often</td>
<td>Often</td>
<td>Sometimes</td>
<td>Rarely</td>
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<td>13. My parents help me choose healthy food to eat.</td>
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<td>Always</td>
<td>Very Often</td>
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<td>14. I think a lot about wanting to be thinner.</td>
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<td></td>
<td>Always</td>
<td>Very Often</td>
<td>Often</td>
<td>Sometimes</td>
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<td>15. I think about burning up energy (calories) when I exercise.</td>
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<td>16. Other people think I am too thin.</td>
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<td>17. I think a lot about having fat on my body.</td>
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<td>18. I take longer than others to eat my meals.</td>
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<td>Sometimes</td>
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<td>20. I stay away from foods with sugar in them.</td>
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<td>Always</td>
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<td>Often</td>
<td>Sometimes</td>
<td>Rarely</td>
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<td>Very Often</td>
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<td>Sometimes</td>
<td>Rarely</td>
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<td></td>
<td></td>
<td>22. I think that food controls my life.</td>
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<td></td>
<td>Always</td>
<td>Very Often</td>
<td>Often</td>
<td>Sometimes</td>
<td>Rarely</td>
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<td></td>
<td></td>
<td>23. I can show self-control around food.</td>
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<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Always</td>
<td>Very Often</td>
<td>Often</td>
<td>Sometimes</td>
<td>Rarely</td>
</tr>
</tbody>
</table>

3
Appendix 3 (continued)

24. I make myself sick (vomit) on purpose after I have eaten.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>

25. I feel that others pressure me to eat.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>

26. I try to eat the same things as my friends.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>

27. I give too much time and thought to food.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>

28. I feel uncomfortable after eating sweets.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>

29. I have been dieting.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>

30. I like my stomach to be empty.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>

31. I enjoy trying rich new foods.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>

32. I have the urge to vomit (be sick) after eating.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>

33. I exercise to keep myself healthy.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>

PLEASE TURN TO THE NEXT PAGE
Appendix 4

Self Perception Profile

Below are some sentences. Each one describes two kinds of people, and you will decide which kind is more like you. Then you will decide whether the description of that kind of person is really true for you.

For example, suppose you read the sentence:

Some people would rather watch television BUT Other people would rather spend time outdoors.

First decide whether you are more like the first people who like to watch television, or more like the other people who would rather spend time outside.

Then, when you have decided which kind of person you are most like, decide whether that is sort of true for you or really true.

IMPORTANT: CIRCLE ONLY ONE SIDE FOR EACH ITEM

<table>
<thead>
<tr>
<th>Really true for me</th>
<th>Sort of true for me</th>
<th>Sort of true for me</th>
<th>Really true for me</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 3 Some people like to go to the cinema in their spare time</td>
<td>BUT Other people would rather go to sports events.</td>
<td>2 1</td>
<td></td>
</tr>
<tr>
<td>4 3 Some people feel that they are just as clever as others their age</td>
<td>BUT Other people aren’t so sure and wonder if they are as clever.</td>
<td>2 1</td>
<td></td>
</tr>
<tr>
<td>4 3 Some people find it hard to make friends</td>
<td>BUT For other people it’s pretty easy.</td>
<td>2 1</td>
<td></td>
</tr>
<tr>
<td>4 3 Some people do very well at all kinds of sports</td>
<td>BUT Other people don’t feel that they are very good when it comes to sports.</td>
<td>2 1</td>
<td></td>
</tr>
<tr>
<td>4 3 Some people are not happy with the way they look</td>
<td>BUT Other people are happy with the way they look.</td>
<td>2 1</td>
<td></td>
</tr>
<tr>
<td>4 3 Some people usually do the right thing</td>
<td>BUT Other people often don’t do what they know is right.</td>
<td>2 1</td>
<td></td>
</tr>
<tr>
<td>4 3 Some people are able to make really close friends</td>
<td>BUT Other people find it hard to make really close friends.</td>
<td>2 1</td>
<td></td>
</tr>
<tr>
<td>4 3 Some people are often disappointed with themselves</td>
<td>BUT Other people are pretty pleased with themselves.</td>
<td>2 1</td>
<td></td>
</tr>
</tbody>
</table>

PLEASE TURN TO THE NEXT PAGE
### Appendix 4 (continued)

<table>
<thead>
<tr>
<th>Really true for me</th>
<th>Sort of true for me</th>
<th>Really true for me</th>
<th>Sort of true for me</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 3</td>
<td>Some people are pretty slow in finishing their school work</td>
<td>BUT</td>
<td>Other people can do their work more quickly.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people have a lot of friends</td>
<td>BUT</td>
<td>Other people don’t have very many friends.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people think they could do well at just about any new athletic activity</td>
<td>BUT</td>
<td>Other people are afraid they might not do well at a new athletic activity.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people wish their body was different</td>
<td>BUT</td>
<td>Other people like their body the way it is.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people often feel guilty about certain things they do</td>
<td>BUT</td>
<td>Other people hardly ever feel guilty about what they do.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people can be trusted to keep secrets that their friends tell them</td>
<td>BUT</td>
<td>Other people have a hard time keeping secrets that their friends tell them.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people don’t like the way they are leading their life</td>
<td>BUT</td>
<td>Other people do like the way they are leading their life.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people do very well at their classwork</td>
<td>BUT</td>
<td>Other people don’t do very well at their classwork.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people are very hard to like</td>
<td>BUT</td>
<td>Other people are really easy to like.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people feel that they are better than others their age at sports</td>
<td>BUT</td>
<td>Other people don’t feel they can play as well.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people wish their physical appearance was different</td>
<td>BUT</td>
<td>Other people like their physical appearance the way it is.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people are usually pleased with the way they behave</td>
<td>BUT</td>
<td>Other people are often ashamed of the way they behave.</td>
</tr>
</tbody>
</table>
### Appendix 4 (continued)

<table>
<thead>
<tr>
<th>Really true for me</th>
<th>Sort of true for me</th>
<th>BUT</th>
<th>Other people do have a close friend to share things with.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 3</td>
<td>Some people don't really have a close friend to share things with</td>
<td>BUT</td>
<td>Other people do have a close friend to share things with.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people are happy with themselves most of the time</td>
<td>BUT</td>
<td>Other people are often not happy with themselves.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people have trouble working out the answers in school</td>
<td>BUT</td>
<td>Other people almost always can work out the answers.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people are popular with others their age</td>
<td>BUT</td>
<td>Other people are not very popular.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people are happy with themselves most of the time</td>
<td>BUT</td>
<td>Other people are often not happy with themselves.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people have trouble working out the answers in school</td>
<td>BUT</td>
<td>Other people almost always can work out the answers.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people are popular with others their age</td>
<td>BUT</td>
<td>Other people are not very popular.</td>
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<tr>
<td>4 3</td>
<td>Some people are happy with themselves most of the time</td>
<td>BUT</td>
<td>Other people are often not happy with themselves.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people have trouble working out the answers in school</td>
<td>BUT</td>
<td>Other people almost always can work out the answers.</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people are popular with others their age</td>
<td>BUT</td>
<td>Other people are not very popular.</td>
</tr>
</tbody>
</table>
Appendix 4 (continued)

<table>
<thead>
<tr>
<th>Really true for me</th>
<th>Sort of true for me</th>
<th>BUT</th>
<th>Other people wish they looked different.</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 3</td>
<td>Some people really like their looks</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people usually act the way they know they are supposed to</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people don't have a friend that is close enough to share with</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>4 3</td>
<td>Some people are very happy being the way they are</td>
<td>2</td>
<td>1</td>
</tr>
</tbody>
</table>
Appendix 5

Body Image Assessment Procedure (shown half size with female figures)

Look at all these body shapes and put a ring round the one that most looks like you do now.
Appendix 5 (continued – shown half size with male figures)

Look at all these body shapes and put a ring round the one that you would MOST WANT TO LOOK LIKE if you could look like any of these.
Appendix 6

Four ChEAT Factors suggested by Smolak & Levine (1994)

Factor 1: Dieting
Item:
11 I think a lot about wanting to be thinner.
12 I think about burning up energy (calories) when I exercise.
14 I think a lot about having fat on my body.
1 I am scared about being overweight.
23 I have been dieting
10 I feel very guilty after I have eaten.
6 I am aware of the energy (calorie) content in foods that I eat.
22 I feel uncomfortable after eating sweets.
17 I eat diet foods.
16 I stay away from foods with sugar in them.
2 I stay away from eating when I am hungry.
24 I like my stomach to be empty.

Factor 2: Restricting and purging
Item:
23 I have been dieting
10 I feel very guilty after I have eaten.
17 I eat diet foods
22 I feel uncomfortable after eating sweets.
9 I vomit after I have eaten.
26 I have the urge to vomit after eating
24 I like my stomach to be empty.
2 I stay away from eating when I am hungry.
7 I try to stay away from foods such as breads, potatoes and rice
**Factor 3: Food preoccupation**

Item:

21 I give too much time and thought to food.
3 I think about food a lot of the time.
18 I think that food controls my life.
4 I have gone on eating binges where I feel that I might not be able to stop.
20 I feel that others pressure me to eat.

**Factor 4: Oral control**

Item:

8 I feel that others would like me to eat more.
13 Other people think I am too thin.
20 I feel that others pressure me to eat.
15 I take longer than others to eat my meals.
Appendix 7
Parents’ exercise and food intake questionnaire, body satisfaction questions and children’s dieting behaviour questionnaire

Healthy Eating, Healthy Families

Thank you for taking the time to complete this questionnaire. The questions should take no longer than 20 minutes to complete. Once completed, please return the questionnaire in the pre-paid envelope provided. The questions below relate to yourself, and to the child who gave you this questionnaire. We apologise if you have more than one child who has brought home the questionnaire - if this is the case, please fill in one copy and discard the remainder. Please do not put your name on the questionnaire, to ensure confidentiality and anonymity.

1. What is your relationship to the child who gave you this questionnaire? (please ring the correct answer)
   father  mother  step-father  step-mother  guardian (living with child full-time)

2. How old are you? ........................................
3. Are you male or female? ..........................

4. How old is your child? .............................
5. Is your child male or female? ......................

6. Please state the age and sex of any other children living in the same household

7. How many times a week does your child participate in PE or sport at school?
   ONCE  TWICE  3 TIMES  MORE THAN 3 TIMES

8. How many times a week does your child participate in exercise outside school?
   ONCE  TWICE  3 TIMES  MORE THAN 3 TIMES

9. How many hours each week does your child spend exercising or playing sport (including in school and out of school)?
   LESS THAN 1 HOUR  BETWEEN 1 AND 3 HOURS  MORE THAN 3 HOURS

10. How many hours each week do you spend exercising or playing sport?
    LESS THAN 1 HOUR  BETWEEN 1 AND 3 HOURS  MORE THAN 3 HOURS

11. Does your child have insulin dependent diabetes?  YES / NO

12. Does your child have any other condition where he or she must follow a special diet?
    YES / NO  If yes, please specify:........................................................................................................

1

PLEASE TURN TO THE NEXT PAGE.
13. Has your child ever been on a diet to lose weight? YES/NO
   If so, was this supported by you or another adult in your family? YES/NO

14. Have you ever been on a diet to lose weight? YES/NO

15. How satisfied are you with the way your body looks? (please put a cross on the line in the place that most fits how you feel about your body)
   Not at all satisfied
   
   Completely satisfied

16. Who chooses what your child eats at mealtimes? Please circle one answer that best describes your general approach to mealtimes:
   (a) You (or another adult) have complete choice
   (b) You (or another adult) offer options to your children, and the children choose one
   (c) You (or another adult) offer a free choice of food to your children
   (d) Your children are able to make their own meals but you (or another adult) monitor what they eat
   (e) Your children are able to make their own meals and have free choice

17. If your child wants a snack between meals, what generally happens? Please circle one answer that best describes your general approach to snacks:
   (a) Your child helps him/herself to whatever food is available without asking you
   (b) Your child asks for a snack and you allow your child a free choice of food
   (c) Your child asks for a snack and you (or another adult) choose appropriate food
   (d) Your child is encouraged not to snack between meals


20. We are interested in your child's eating behaviour. Please think about the last six months and tick a box for each question.
   Over the last 6 months, how often has your child:
   | NOT AT ALL | SOME DAYS BUT NOT ALL DAYS | NEARLY EVERY DAY |
   | (NEVER)    |                              |                   |

   Eaten less food at mealtimes?
   |  |

   Cut out or reduced sweets and chocolate?
   |  |

   Skipped a meal?
   |  |

   Eaten nothing all day?
   |  |

   Exercised to lose weight?
   |  |

   Kept a careful track of what he/she has eaten?
   |  |

   Followed a special diet to lose weight?
   |  |
Appendix 8

Eating Attitudes Test and parents’ dieting behaviour questionnaire

What do you think about food and exercise?
Please put a ring round the word which is closest to how often you do each of the things below.

<table>
<thead>
<tr>
<th></th>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I eat lots of fruit and vegetables.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>I am terrified about being overweight.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I avoid eating when I am hungry.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>I find myself preoccupied with food.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>I have gone on eating binges where I feel that I might not be able to stop.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>I cut my food into small pieces.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>I am interested in learning more about a healthy diet.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>I am aware of the calorie content of foods that I eat.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>I particularly avoid foods with a high carbohydrate content (e.g. bread, potatoes, rice etc.).</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>I feel that others would prefer if I ate more.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>I vomit after I have eaten.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4

PLEASE TURN TO THE NEXT PAGE.
### Major Research Project

**Appendix 8 (continued)**

<table>
<thead>
<tr>
<th>Question</th>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>12. I feel extremely guilty after eating.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. I am preoccupied with a desire to be thinner.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>14. I think about burning up calories when I exercise.</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Other people think that I am too thin.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. I am preoccupied with the thought of having fat on my body.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. I take longer than others to eat my meals.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18. I notice what my family eats.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19. I avoid foods with sugar in them.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20. I eat diet foods.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21. I feel that food controls my life.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>22. I display self-control around food.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>23. I feel that others pressure me to eat.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**PLEASE TURN TO NEXT PAGE**
24. I give too much time and thought to food.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>

25. I feel uncomfortable after eating sweets.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>


<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>

27. I like my stomach to be empty.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>

28. I enjoy trying new rich foods.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>

29. I have the impulse to vomit after meals.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>

30. I exercise to keep myself healthy.

<table>
<thead>
<tr>
<th>Always</th>
<th>Very Often</th>
<th>Often</th>
<th>Sometimes</th>
<th>Rarely</th>
<th>Never</th>
</tr>
</thead>
</table>

We are interested in your own eating patterns. Please think about the last six months and tick a box for each question. Over the last 6 months, how often have you:

<table>
<thead>
<tr>
<th>Eaten less food at mealtimes?</th>
<th>NOT AT ALL</th>
<th>SOME DAYS BUT</th>
<th>NEARLY</th>
<th>EVERY DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cut out or reduced sweets and chocolate?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Skipped a meal?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eaten nothing all day?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Exercised to lose weight?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kept a careful track of what he/she has eaten?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Followed a special diet to lose weight?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

PLEASE TURN TO THE NEXT PAGE.
We are interested in the sort of food your child eats. Please fill in the table below thinking about *everything your child ate or drank yesterday*. Please try to estimate how much of each food or drink your child consumed.

<table>
<thead>
<tr>
<th>Breakfast time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>My child ate...</td>
</tr>
<tr>
<td>My child drank...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Before lunch:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please record all snacks and drinks your child ate during the morning</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Lunch time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>My child ate...</td>
</tr>
<tr>
<td>My child drank...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Afternoon:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Please record all snacks and drinks your child ate during the afternoon</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dinner time:</th>
</tr>
</thead>
<tbody>
<tr>
<td>My child ate...</td>
</tr>
<tr>
<td>My child drank...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Before bedtime:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did your child have a snack after dinner before he/she went to bed? YES / NO</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>If so, what did your child eat or drink?</th>
</tr>
</thead>
</table>
We are interested in the sort of food you eat. Please fill in the table below thinking about *everything you ate or drank yesterday*. Please try to estimate how much of each food or drink you consumed.

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>What You Ate</th>
<th>What You Drank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast time</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before lunch</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lunch time</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Afternoon</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dinner time</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Before bedtime</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did you have a snack after dinner before you went to bed?</td>
<td>YES / NO</td>
<td></td>
</tr>
<tr>
<td>If so, what did you eat or drink?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Thank you very much for taking the time to fill in this questionnaire for our research.*
Appendix 10

Approval letter from University of Surrey ethics committee

9 September 1999

Ms K Danvers
PsychD Clinical Psychology Trainee
Department of Psychology
School of Human Sciences
University of Surrey

Dear Ms Danvers

Eating attitudes and body image in 7-10 year old children. (ACE/99/38/Psych)

I am writing to inform you that the Advisory Committee on Ethics has considered the above protocol and subsequent information supplied under the ‘fast track’ procedure, and has approved it on the understanding that the Ethics Guidelines are observed, and with the following conditions:

That you submit for our records a copy of the letters giving final approval from the South West Surrey and North West Surrey Local Research Ethics Committees.

This letter of outline approval relates only to the study specified in your protocol (ACE/99/38/Psych). The Committee should be notified of any changes to the proposal, or if the study is terminated earlier than expected (with reasons). I enclose a copy of the Ethics Guidelines booklet for your information.

Yours sincerely

Helen Schuyleman (Mrs)
Secretary, University Advisory Committee on Ethics

cc: Professor L J King, Chairman, ACE
Dr Emma Dunmore, Principal Investigator, Dept of Psychology

The Queen's Anniversary Prizes for Higher Education 1994

Ms K Danvers
PsychD Clinical Psychology Trainee
Department of Psychology
School of Human Sciences
University of Surrey
First information letter for parents of non-diabetic children

"Healthy Children, Healthy Families": A University of Surrey Research Project

Dear Parent,

Your child's school has agreed to participate in a research project carried out by researchers at the University of Surrey.

The project will explore exercise and eating patterns in families.

The project will require people to fill in questionnaires with their opinions about food and exercise.

The school has agreed to allow researchers to visit classrooms to ask children to fill in questionnaires.

Children will also be given questionnaires to take home for parents to fill in.

Answers will be completely confidential, and the school will not be given feedback about individuals' responses.

Details of what to do if you do NOT want your child to take part in the study are printed on the back of this letter, together with further information about the study and the researchers.

Thankyou for considering this project.

Yours faithfully,

Ms Kate Danvers
Clinical Psychologist in Training

Dr Emma Dunmore
Chartered Clinical Psychologist

Kate Danvers
Principle Researcher

Dr Emma Dunmore
Research Supervisor

University of Surrey
Guildford
Surrey GU2 5XH, UK
Telephone: +44 (0)1483 300800
Facsimile: +44 (0)1483 300803

School of Human Sciences
Psych. D. course in Clinical Psychology
tel. (01483) 259441
Healthy Eating, Healthy Families: Information sheet

Our study will explore what 7-10 year old children and their parents think about exercise and food, and assess their motivation to maintain a healthy body. We hope the study will generate answers to questions such as: Are young children able to understand healthy lifestyle messages? Are young children concerned about their physique? Do they know which foods are healthy? Do children pick up their parents' attitudes to healthy lifestyles, or are they more influenced by their peers?

Our research will contribute to the growing body of knowledge about children's eating and exercise patterns, and will have important implications in both education and health fields.

The information for our project can be collected via questionnaires which will mainly require people to just tick a box to say how much they agree or disagree with various statements. Your child's school has agreed to allow researchers to visit classrooms to collect information. We hope to visit each class no more than twice to ensure minimum disruption to usual classroom activities. Questionnaires can be read out to the whole class at once, and the researcher will be available to give help in case children have difficulty understanding the questions.

Children will also be given questionnaires to take home to parents. We hope you will feel able to fill in these questionnaires which will provide valuable information for our project. Should you agree to your family's participation in this project, both your own and your child's answers will be kept entirely confidential and all records will be anonymous. The school will not be given feedback about individual participants' responses, but we are happy to provide the school with general information about the results of the study once the project is complete.

All researchers involved in the study have experience of working therapeutically with children on a one-to-one basis, and prior research experience. The study has been approved by the University of Surrey Ethics Committee.

If you are happy for your child to participate in the study, and for questionnaires to be sent home to yourselves, you need take no more action. However, should you have any questions about the study, please feel free to contact Kate Danvers at the Department of Clinical Psychology, University of Surrey, by leaving a message on (01483) 259441 and we will be happy to contact you to discuss the study with you. The study is entirely voluntary, and you are free to withdraw your child from the study. If you do not wish your child to participate in the study, please inform us at the above address in writing or by telephone in the next fortnight.

Thank you for your consideration of this research.
Second information letter for parents of non-diabetic children

Dear Parent,

Your child's school has agreed to participate in a research project carried out by researchers at the University of Surrey. The project will explore exercise and eating patterns in families.

As part of the project, your child has been asked to fill in a questionnaire about food and exercise. With this letter you will find a parents' questionnaire and a pre-paid envelope. We are interested in what parents think about food and exercise, and we will be very grateful if you agree to fill in this short questionnaire.

Parents' answers will be valuable for our research so we can understand more about helping children to choose healthy lifestyles. If you decide to help with our research, your answers will be completely confidential. The school will not be given feedback about individuals' responses, or informed about who returned questionnaires.

Thank you for taking time to consider this project. We hope you will feel able to complete the questionnaire. If you do, please complete all questions on the questionnaire and return it in the pre-paid envelope provided. Once you have returned your questionnaire, you will not be contacted by the researchers again.

If you have any questions about the research, please feel free to leave your name and number on the answer-phone on (01483) 259441, and the main researcher will contact you as soon as possible.

Yours faithfully,

Kate Danvers
Clinical Psychologist in Training
Principle Researcher

Ms Kate Danvers
Clinical Psychologist in Training
Principle Researcher

Dr Emma Dunmore
Chartered Clinical Psychologist
Research Supervisor
Appendix 13

Approval letters from Health Authority ethics committees

NORTH WEST SURREY LOCAL RESEARCH ETHICS COMMITTEE
The Ridgewood Centre, Old Bisley Road, Frimley, Camberley, Surrey, GU16 5OE
Direct Line: 01276 605556 Fax: 01276 605496 DX: 118800 Frimley 2

Chairman: Dr Patricia Wilkie Administrator: Miss Joanne Pharoah

Ms K Danvers
Clinical Psychologist in Training
School of Human Sciences
University of Surrey
Guildford
Surrey
GU2 5XH

23 August 1999

Dear Ms Danvers

PRO/54/99 - Eating attitudes and body image in children with insulin dependent diabetes mellitus

Thank you for your correspondence dated 9 August 1999 responding to points raised by the committee at the July meeting. I have reviewed the amendments and am now happy to take chairman's action and grant your study full ethical approval. My decision should be ratified at our meeting on the 3 September 1999.

Please notify the committee in advance of any significant proposed deviation from the original protocol. Would you also report any unusual or unexpected results, which raise questions about the safety of the research once the study is under way. The committee would be interested in the final results of your study and wish you every success in carrying it out.

Yours sincerely,

Patricia Wilkie PhD
Chairman
North West Surrey Local Research Ethics Committee
Ms Kate Danvers
Clinical Psychologist in Training
School of Human Sciences
University of Surrey
Guildford GU2 5XH

Dear Ms Danvers

I am pleased to be able to inform you that at its meeting on 23 August 1999 the Ethics Committee approved the above study subject to the following conditions:

(i) In paragraph 5 of Appendix 3 the words "who believe........of the participants" should be removed. The last paragraph beginning "Thank you..." should also be removed since this makes an unreasonable presumption that the parent will co-operate.

(ii) Patients' GPs should be put fully in the picture about the study.

(iii) You should ensure that the questionnaire forming pages 5-8 of Appendix 1 is properly validated and the results analysed in a meaningful way with the appropriate professional input.

(iv) No deviations from or changes of the protocol should be initiated without prior written approval of the Committee

(v) The Committee should be provided with a copy of the report on the outcome of the study or a copy of any published document

(vi) If the start of the project is delayed more than one year from the date of approval the protocol should be resubmitted to the Committee for further review.

Yours sincerely

John Kerslake
Co-ordinator
Appendix 14

Information letter for parents of diabetic children

"Healthy Children, Healthy Families": A Research Project in conjunction with The University of Surrey

Dear Parent,

The staff of the children's diabetes clinic at Frimley Children's Centre have agreed to participate in a research project exploring exercise and eating patterns in families, which is being carried out by researchers at the University of Surrey. We write to inform you about the study, and to ask for your consent for your child to participate.

As you know, there is presently an increasing trend for children to take less exercise and eat a less balanced diet than did children of previous generations. This is despite the efforts of parents and schools to teach children the importance of a healthy lifestyle, and movement towards preventive health care in the community. Our study will explore how 8-10 year old children and their parents think about exercise and food, and assess their motivation to maintain a healthy body. We hope the study will generate answers to questions such as: Are young children able to understand healthy lifestyle messages? Are young children concerned about their physique? Do they know which foods are healthy? Do children pick up their parents' attitudes to healthy lifestyles, or are they more influenced by their peers? Our research will contribute to the growing body of knowledge about children's eating and exercise patterns, and will have important implications in both education and health fields.

Children with insulin dependent diabetes are a particularly important group for study, because of their increased awareness about diet and lifestyle issues. Some research has shown that teenagers with diabetes are at risk of developing unhealthy patterns of eating, but very little is known about how younger children with diabetes think about food. This research project will explore whether young children with diabetes are more able than their peers to follow a healthy lifestyle, or whether having diabetes can increase family worries and fears about eating and diet. Information gained from your child and others could be helpful in deciding how best to educate and support children with diabetes in the future.

The information for this project can be collected via questionnaires which will mainly require people to just tick a box to say how much they agree or disagree with various statements. The staff of the diabetes clinic are in full support of this study, and have agreed to allow researchers to visit clinics and hand out questionnaires to those who consent to participate. Children can complete questionnaires on their own or with the help of a researcher when they visit the clinic for their check-up. The researchers hope that parents will also feel able to fill in some questionnaires which will provide valuable information for our project. The questionnaires should take about 20 - 30 minutes to complete.

Should you agree to your family's participation in this project, both your own and your child's answers will be kept entirely confidential and all records will be anonymous. None of the staff who care for your child will...
the hospital will be given feedback about individual participants' responses, but the researchers are happy to provide general information about the results of the study once the project is complete. Your GP will be informed that your family has taken part in the study, but again, no feedback will be given about individual participants' responses.

The study is entirely voluntary, and you are free at any time to withhold permission for your child to participate. Your child's care will not be affected in any way by your decision about whether or not to participate in the study. All researchers involved in the study have experience of working therapeutically with children on a one-to-one basis, and prior research experience. The study has been approved by the local Health Authority Ethics Committee.

When you next visit the hospital for your child's check up, you will be asked for your permission for yourself and your child to participate in the study. At this time you will also have a chance to ask any questions about the study. Alternatively, please feel free to contact the researchers at the Department of Clinical Psychology, University of Surrey, (tel. 01483 259441), leaving a message for Kate Danvers, who will be happy to contact you to discuss the study with you.

Thank you for considering this research.

Yours sincerely,

[Signatures]

Dr A. Mallik
Consultant Paediatrician
Frimley Park Hospital

Ms Kate Danvers
Clinical Psychologist in Training
Principle Researcher

Research supervised by:
Dr Fiona John, Clinical Psychologist at St Peter's Hospital Dept. of Child & Family Psychological Medicine
Dr Emma Dunmore, Clinical Psychologist and Academic Tutor at the University of Surrey
Information sheet for diabetic children

Healthy Children, Healthy Families
Information Sheet for Children

Please will you help with a study all about children like you who have diabetes?

My name is Kate Danvers and I work at the University of Surrey. I am trying to learn about how children with diabetes think about their bodies, what they eat and how they exercise. Some people think that children with diabetes worry more about these things, but others think that children with diabetes have extra knowledge about being healthy and eating the right things. I would like to find out more, so that in the future, children with diabetes can be given lots of support by people at the hospital to help them stay happy and healthy.

I have talked with your doctor about this study, and he thinks it is a good idea. I have also told your parents about the study, and they said it is OK for me to ask you to help. I would like you to help the study by filling in some questions about yourself, and about what you think about food, exercise and dieting. You don't have to do this if you don't want to, it is completely up to you.

If you do want to fill in the questions, your answers will be kept private. Only I will see your answers, and I won't tell anyone else. Not even your doctor, or your parents will know about your answers. The questions are not difficult, because all you have to do is put what you think. It is not a test, and there are no right or wrong answers.

If you have any questions at all, please ask me, and I can tell you more about the study.

If you are happy to fill in the questions, please write your name below.
Appendix 16

Consent form for parents of diabetic children

I the undersigned voluntarily agree to take part in the "Healthy Children, Healthy Families" study, and to allow my child to participate.

I have read and understood the information provided. I have been given a full explanation by the investigators of the nature, purpose, location and likely duration of the study, and of what I will be expected to do. I have been given the opportunity to ask questions on all aspects of the study and have understood the information given as a result.

I give consent for my child to fill in questionnaires as part of the study. I agree to complete and return questionnaires given to me as part of the study at my earliest convenience, and at no cost to myself. I understand that all documentation is held in the strictest confidence and is anonymous, and that I will not seek to restrict the use of the results of the study on the understanding that the anonymity of myself and my child is preserved. I understand that I am free to withdraw from the study at any time and that doing so will not affect the care my child receives in any way.

I confirm that I have read and understood the above and freely consent to participating in this study. I have been given adequate time to consider my participation and agree to comply with the instructions and restrictions of the study.

Name of parent/guardian (BLOCK CAPITALS) ..................................................

Name of child (BLOCK CAPITALS) ..........................................................

Signed (parent/guardian) ..........................................................

Date ..........................................................

The Queen's University of Belfast
Appendix 17

Letter to GPs of diabetic children

ASHFORD ST PETER'S
HOSPITALS NHS TRUST
St. Peter's Hospital Guildford Road, Chertsey, Surrey KT16 0PZ Telephone 01932 872000 Facsimile 01932 874757

"Healthy Eating, Healthy Families":
A University of Surrey Research Project

Dear Dr............................

We write to provide some information about our research, in which the family of your patient ................................................have consented to participate, by filling in questionnaires when they visit the diabetes clinic for a regular appointment.

The research is supported by the Consultant Paediatricians at Frimley Park Hospital (Dr Mallik), The Royal Surrey County Hospital (Dr Ryalls) and St Peter's Hospital (Dr Crawshaw), and explores how 7-10 year old children and their parents think about exercise and food, and assesses their motivation to maintain a healthy body. We hope the study will generate answers to questions such as: Are young children able to understand healthy lifestyle messages? Are young children concerned about their physique? Do they know which foods are healthy? Do children pick up their parents' attitudes to healthy lifestyles, or are they more influenced by their peers? The research will contribute to the growing body of knowledge about children's eating and exercise patterns, and will have important implications in both education and health fields.

Children with Insulin Dependent Diabetes Mellitus are a particularly important group for study, because of their increased awareness about diet and lifestyle issues. Some research has shown that teenagers with diabetes are at risk of developing unhealthy patterns of eating, but very little is known about how younger children with diabetes think about food. This research project will explore whether young children with diabetes are more able than their peers to follow a healthy lifestyle, or whether having diabetes can increase family worries and fears about eating and diet. Information gained from the project could be helpful in deciding how best to educate and support children with diabetes in the future.

If you have any questions or would like further information about the study, please feel free to leave your name and number at the department of Clinical Psychology on (01483) 259441, and Kate Danvers will contact you as soon as possible.

Yours sincerely,

Ms Kate Danvers
Clinical Psychologist in Training
Principle Researcher

Dr Paul Crawshaw
Consultant Paediatrician

NHS

295
Appendix 18

Exploring age differences on the Modified ChEAT

Analyses were conducted to determine which questions on the ChEAT were answered differently according to age (see Table 21). After using the Bonferroni correction for multiple comparisons, three questions showed significant differences: “I think about food a lot of the time”, “I try to stay away from foods such as breads, potatoes and rice” and “I feel that others pressure me to eat”. The three questions all fell into different factors as suggested by Smolak and Levine (1994) (these factors are shown in Appendix 6). “I think about food a lot of the time” fell into the “Food Preoccupation” factor, “I try to stay away from foods such as breads, potatoes and rice” fell into the “Restricting and Purging” factor and “I feel that others pressure me to eat” fell into the “Oral Control” factor.

Mann-Whitney post-hoc tests were used to determine the nature of these age effects, and results of the analyses are shown in Table 22. For each of the three items, after using the Bonferroni correction for multiple comparisons, the only age groups that differed significantly were eight and ten year olds. Eight year-olds scored higher than ten year-olds on each of the three questions.

Scores on the four factors suggested by Smolak and Levine (1994) were explored for differences according to age. Mean scores on the four factors by age group are shown in Table 23. Kruskal-Wallis tests showed significant age differences for Factor 1: “Dieting” ($\chi^2 = 9.504$, df = 3, $p = 0.023$), Factor 2: “Restricting and purging” ($\chi^2 = 20.82$, df = 3, $p < 0.0001$), Factor 3: “Food preoccupation” ($\chi^2 = 48.42$, df = 3, $p < 0.0001$) and Factor 4: “Oral control” ($\chi^2 = 10.37$, df = 3, $p = 0.016$). Post-hoc Mann-Whitney U tests were used to compare pairs of age groups to determine where the differences lay. After using the Bonferroni correction for multiple comparisons, only four of the 24 comparisons remained significant. On Factor 2 “Restricting and purging” eight year-olds scored higher than ten year-olds ($U = 2852$, $n = 187$, $p < 0.0001$) and on Factor 3 “Food preoccupation” eight year-olds scored higher than ten year-olds ($U = 2144$, $n = 190$, $p < 0.0001$) and eleven year-olds ($U = 398.5$, $n = 100$, $p$
< 0.0001), and nine year-olds scored higher than ten year-olds (U = 5060, n = 241, p < 0.0001). Results of all the comparisons are shown in Table 24 below.

Table 21: Results of Kruskal-Wallis Tests for Age Differences on Individual ChEAT Items

<table>
<thead>
<tr>
<th>ITEM</th>
<th>TEST RESULTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I am scared about being overweight</td>
<td>( \chi^2 ) 5.861, df 3, p = 0.119</td>
</tr>
<tr>
<td>2. I stay away from eating when I am hungry</td>
<td>( \chi^2 ) 6.243, df 3, p = 0.100</td>
</tr>
<tr>
<td>3. I think about food a lot of the time</td>
<td>( \chi^2 ) 22.71, df 3, p &lt; 0.0001*</td>
</tr>
<tr>
<td>4. I have gone on eating binges where I feel that I might not be able to stop</td>
<td>( \chi^2 ) 8.154, df 3, p = 0.043</td>
</tr>
<tr>
<td>5. I cut my food into small pieces</td>
<td>( \chi^2 ) 0.453, df 3, p = 0.929</td>
</tr>
<tr>
<td>6. I am aware of the energy (calorie) content in foods that I eat</td>
<td>( \chi^2 ) 1.877, df 3, p = 0.598</td>
</tr>
<tr>
<td>7. I try to stay away from foods such as breads, potatoes and rice</td>
<td>( \chi^2 ) 15.61, df 3, p = 0.001*</td>
</tr>
<tr>
<td>8. I feel that others would like me to eat more</td>
<td>( \chi^2 ) 1.124, df 3, p = 0.771</td>
</tr>
<tr>
<td>9. I vomit after I have eaten</td>
<td>( \chi^2 ) 7.123, df 3, p = 0.068</td>
</tr>
<tr>
<td>10. I feel very guilty after I have eaten</td>
<td>( \chi^2 ) 0.995, df 3, p = 0.802</td>
</tr>
<tr>
<td>11. I think a lot about wanting to be thinner</td>
<td>( \chi^2 ) 5.718, df 3, p = 0.126</td>
</tr>
<tr>
<td>12. I think about burning up energy (calories) when I exercise</td>
<td>( \chi^2 ) 0.186, df 3, p = 0.980</td>
</tr>
<tr>
<td>13. Other people think I am too thin</td>
<td>( \chi^2 ) 3.648, df 3, p = 0.302</td>
</tr>
<tr>
<td>14. I think a lot about having fat on my body</td>
<td>( \chi^2 ) 4.019, df 3, p = 0.259</td>
</tr>
<tr>
<td>15. I take longer than others to eat my meals</td>
<td>( \chi^2 ) 9.313, df 3, p = 0.025</td>
</tr>
<tr>
<td>16. I stay away from foods with sugar in them</td>
<td>( \chi^2 ) 2.509, df 3, p = 0.474</td>
</tr>
<tr>
<td>17. I eat diet foods</td>
<td>( \chi^2 ) 8.487, df 3, p = 0.037</td>
</tr>
<tr>
<td>18. I think that food controls my life</td>
<td>( \chi^2 ) 11.50, df 3, p = 0.009</td>
</tr>
<tr>
<td>19. I can show self-control around food</td>
<td>( \chi^2 ) 6.308, df 3, p = 0.098</td>
</tr>
<tr>
<td>20. I feel that others pressure me to eat</td>
<td>( \chi^2 ) 20.54, df 3, p &lt; 0.0001*</td>
</tr>
<tr>
<td>21. I give too much time and thought to food</td>
<td>( \chi^2 ) 12.26, df 3, p = 0.007</td>
</tr>
<tr>
<td>22. I feel uncomfortable after eating sweets</td>
<td>( \chi^2 ) 4.521, df 3, p = 0.210</td>
</tr>
<tr>
<td>23. I have been dieting</td>
<td>( \chi^2 ) 1.840, df 3, p = 0.606</td>
</tr>
<tr>
<td>24. I like my stomach to be empty</td>
<td>( \chi^2 ) 5.400, df 3, p = 0.145</td>
</tr>
<tr>
<td>25. I enjoy trying rich new foods</td>
<td>( \chi^2 ) 5.712, df 3, p = 0.126</td>
</tr>
<tr>
<td>26. I have the urge to vomit (be sick) after eating</td>
<td>( \chi^2 ) 3.124, df 3, p = 0.373</td>
</tr>
</tbody>
</table>

Note: \( \chi^2 \) values in bold are significant at the 5% level, and * indicates results which remained significant after using the Bonferroni correction for multiple comparisons.
### Table 22: Results of Mann-Whitney U Post-hoc Tests to Determine Nature of Age Effects on Individual ChEAT Items

<table>
<thead>
<tr>
<th>AGE GROUPS</th>
<th>Test Statistics</th>
<th>ITEM 3</th>
<th>ITEM 7</th>
<th>ITEM 20</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eight and nine</td>
<td>U</td>
<td>4278</td>
<td>4508</td>
<td>4284</td>
</tr>
<tr>
<td></td>
<td>( p )</td>
<td>0.070</td>
<td>0.218</td>
<td>0.046</td>
</tr>
<tr>
<td></td>
<td>( n )</td>
<td>205</td>
<td>203</td>
<td>204</td>
</tr>
<tr>
<td>Eight and ten</td>
<td>U</td>
<td>3091</td>
<td>3562</td>
<td>3373</td>
</tr>
<tr>
<td></td>
<td>( p )</td>
<td>&lt; 0.0001*</td>
<td>&lt; 0.0001*</td>
<td>&lt; 0.0001*</td>
</tr>
<tr>
<td></td>
<td>( n )</td>
<td>191</td>
<td>191</td>
<td>190</td>
</tr>
<tr>
<td>Eight and eleven</td>
<td>U</td>
<td>627</td>
<td>777</td>
<td>694</td>
</tr>
<tr>
<td></td>
<td>( p )</td>
<td>0.007</td>
<td>0.091</td>
<td>0.015</td>
</tr>
<tr>
<td></td>
<td>( n )</td>
<td>101</td>
<td>101</td>
<td>100</td>
</tr>
<tr>
<td>Nine and ten</td>
<td>U</td>
<td>6004</td>
<td>6324</td>
<td>6482</td>
</tr>
<tr>
<td></td>
<td>( p )</td>
<td>0.002</td>
<td>0.004</td>
<td>0.008</td>
</tr>
<tr>
<td></td>
<td>( n )</td>
<td>242</td>
<td>240</td>
<td>242</td>
</tr>
<tr>
<td>Nine and eleven</td>
<td>U</td>
<td>1226</td>
<td>1378</td>
<td>1338</td>
</tr>
<tr>
<td></td>
<td>( p )</td>
<td>0.059</td>
<td>0.271</td>
<td>0.107</td>
</tr>
<tr>
<td></td>
<td>( n )</td>
<td>152</td>
<td>150</td>
<td>152</td>
</tr>
<tr>
<td>Ten and eleven</td>
<td>U</td>
<td>1345</td>
<td>1324</td>
<td>1342</td>
</tr>
<tr>
<td></td>
<td>( p )</td>
<td>0.841</td>
<td>0.542</td>
<td>0.718</td>
</tr>
<tr>
<td></td>
<td>( n )</td>
<td>138</td>
<td>138</td>
<td>138</td>
</tr>
</tbody>
</table>

Note: \( p \) values in bold indicates significance at the 5% level, and * indicates results which remained significant after using the Bonferroni correction for multiple comparisons.

### Table 23: Mean Scores for each Age Group on the Four ChEAT Factors suggested by Smolak and Levine (1994)

<table>
<thead>
<tr>
<th>AGE</th>
<th>FACTOR 1 Dieting</th>
<th>Mean</th>
<th>s.d.</th>
<th>FACTOR 2 Restricting and Purging</th>
<th>Mean</th>
<th>s.d.</th>
<th>FACTOR 3 Food preoccupation</th>
<th>Mean</th>
<th>s.d.</th>
<th>FACTOR 4 Oral control</th>
<th>Mean</th>
<th>s.d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eight</td>
<td></td>
<td>5.84</td>
<td>5.55</td>
<td>2.88</td>
<td>3.81</td>
<td>3.00</td>
<td>3.03</td>
<td>2.45</td>
<td>3.06</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nine</td>
<td></td>
<td>4.42</td>
<td>4.79</td>
<td>1.98</td>
<td>2.78</td>
<td>2.08</td>
<td>2.69</td>
<td>2.13</td>
<td>2.66</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ten</td>
<td></td>
<td>3.89</td>
<td>5.03</td>
<td>1.16</td>
<td>2.32</td>
<td>0.85</td>
<td>1.69</td>
<td>1.29</td>
<td>2.15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eleven</td>
<td></td>
<td>3.58</td>
<td>4.91</td>
<td>0.88</td>
<td>1.92</td>
<td>0.58</td>
<td>1.14</td>
<td>2.00</td>
<td>2.65</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ALL AGES</td>
<td></td>
<td>4.48</td>
<td>5.09</td>
<td>1.83</td>
<td>2.93</td>
<td>1.75</td>
<td>2.55</td>
<td>1.90</td>
<td>2.62</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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### Table 24: Results of Mann-Whitney U Post-hoc Tests to Determine Nature of Age Effects on Smolak & Levine’s ChEAT Factors

<table>
<thead>
<tr>
<th>AGE GROUPS COMPARED</th>
<th>TEST STATISTICS</th>
<th>FACTOR 1 Dieting</th>
<th>FACTOR 2 Restricting and purging</th>
<th>FACTOR 3 Food preoccupation</th>
<th>FACTOR 4 Oral control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eight and nine</td>
<td>U</td>
<td>3779</td>
<td>3866</td>
<td>3820</td>
<td>4621</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>0.054</td>
<td>0.068</td>
<td><strong>0.011</strong></td>
<td>0.665</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>196</td>
<td>196</td>
<td>203</td>
<td>202</td>
</tr>
<tr>
<td>Eight and ten</td>
<td>U</td>
<td>3134</td>
<td>2852</td>
<td>2144</td>
<td>3373</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td><strong>0.005</strong></td>
<td>&lt;0.0001*</td>
<td>&lt;0.0001*</td>
<td>0.007</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>186</td>
<td>187</td>
<td>190</td>
<td>189</td>
</tr>
<tr>
<td>Eight and eleven</td>
<td>U</td>
<td>634</td>
<td>556</td>
<td>399</td>
<td>879</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>0.034</td>
<td>0.003</td>
<td>&lt;0.0001*</td>
<td>0.779</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>98</td>
<td>99</td>
<td>100</td>
<td>100</td>
</tr>
<tr>
<td>Nine and ten</td>
<td>U</td>
<td>6242</td>
<td>5554</td>
<td>5060</td>
<td>5768</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>0.248</td>
<td>0.009</td>
<td>&lt;0.0001*</td>
<td>0.007</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>234</td>
<td>223</td>
<td>241</td>
<td>239</td>
</tr>
<tr>
<td>Nine and eleven</td>
<td>U</td>
<td>1277</td>
<td>1093</td>
<td>999</td>
<td>1498</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>0.316</td>
<td>0.038</td>
<td>0.005</td>
<td>0.941</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>146</td>
<td>145</td>
<td>151</td>
<td>150</td>
</tr>
<tr>
<td>Ten and eleven</td>
<td>U</td>
<td>1292</td>
<td>1252</td>
<td>1332</td>
<td>1058</td>
</tr>
<tr>
<td></td>
<td>p</td>
<td>0.761</td>
<td>0.538</td>
<td>0.808</td>
<td>0.066</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>136</td>
<td>136</td>
<td>138</td>
<td>137</td>
</tr>
</tbody>
</table>

Note: p values in bold are significant at the 5% level, and * indicates results which remained significant after using the Bonferroni correction for multiple comparisons.