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UNIVERSITY OF SOUTHAMPTON

Faculty of Medicine, Health and Life sciences

School of Psychology

**Towards an understanding of the role of memories
and expectations in child and adolescent depression**

Volume 1 of 1

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Disclaimer statement

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GENERAL ABSTRACT

Depression in childhood can have a significant impact on immediate and long-term functioning. Cognitive theories of depression propose that individuals are characterised by processing preferences, particularly in memory, that lead them to think about negative material as opposed to more neutral or positive material. In order to examine memory biases in childhood depression, the literature review examines child and adolescent mood and memory bias research, specifically in relation to recall for newly acquired emotional material, and autobiographical memories. The links between memory biases and future expectations are discussed. Given that reductions of positive expectations have been linked to hopelessness and parasuicidal behaviour in adults, the empirical paper presents a study examining the relationship between memories, expectations and hopelessness in clinically depressed and anxious adolescents. Recall and anticipation of positive and negative experiences were examined by administering the personal memory/future thinking task. Participants generated positive and negative memories and future expectations in response to three time cues (a week, a year, 5-to-10 years). Participants also completed the voice Diagnostic Interview Schedule for Children, and self-report measures of depression, anxiety, and hopelessness. Clinical adolescents differed from non-clinical adolescents in producing fewer positive memories and expectations but the groups did not differ in the number of negative memories and expectations produced. Self-reported hopelessness in clinical adolescents was associated with fewer positive memories, whereas hopelessness was related to more negative memories in non-clinical adolescents. The results highlight the importance of positive cognitions in depressed and anxious adolescents and offers preliminary evidence that the mechanisms involved in adolescent hopelessness may be different to adults.

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LITERATURE REVIEW PAPER

The role of memory in child and adolescent depression: A review

Rachel C. Seymour

Clinical Psychology Review was used as a guide in determining the preparation of this paper (see Appendix 1 for guide for authors).

ABSTRACT

Depression in children and adolescents can have a significant impact on immediate and long-term functioning. Depressive disorders are typically associated with memory biases in adults and there is a substantial literature documenting this. The aim of this paper is to review the child and adolescent mood and memory bias literature specifically in relation to recall for newly acquired emotional material, and personally salient autobiographical memories. Methodological and developmental issues are highlighted in the critical evaluation of research findings. Links between memory biases, future expectations and hopelessness are discussed. Finally, theoretical and treatment implications are considered and areas for future research presented.

Keywords: Depression; memory; children; adolescents; autobiographical memory.

1. INTRODUCTION

Childhood depression is an important area for research because it is associated with problems in school, family and peer functioning (Lewinsohn & Essau, 2002), and it is also associated with suicidal behaviours (Bridge, Goldstein, & Brent, 2006; Spirito, Valeri, Boergers, & Donaldson, 2003). Cognitive theories of depression propose that individuals are characterised by processing preferences in perception, attention and memory that lead them to think about negative, depression-related information as opposed to more neutral or positive information (e.g. Beck, Rush, Shaw, & Emery, 1979). This biased processing exacerbates depressed mood thereby creating a maintaining cycle (Dalglish, Taghavi, Neshat-Doost, Moradi, Canterbury, & Yule, 2003). Depressive disorders have generally been associated with memory biases (whereas, anxiety is more often associated with attentional biases). While there is considerable support for these propositions in adult populations (see Williams, Watts, MacLeod, & Mathews, 1997, for a review), the evidence in child and adolescent populations is less well developed. This is surprising because most cognitive theories place the origins of biased processing in depressed states in childhood or adolescence when schemata about the self, the world and the future are developed (e.g. Beck, 1976). If we wish to apply cognitive theories of adult depression to younger populations then it is particularly important to examine patterns of information processing in childhood. The aim of the current paper is to focus on the literature investigating memory processes and depression in order to understand their role in childhood depression.

The following issues will be addressed: i) how has memory been examined in depressed children and adolescents and what are the methodological limitations; ii) are the mood and memory processes that have been associated with adult depression also evident in depressed children and adolescents; and iii) what can we conclude from the extant research in terms of theoretical and treatment implications. The examination of these issues starts by introducing the construct of depression in children and adolescents. Epidemiological data are presented to demonstrate that depression does exist in children and adolescents. Following this, the key cognitive models of adult depression will be presented in order to provide a theoretical framework for the depression and memory literature, which covers two broad domains: i) recall for newly acquired emotional information; and ii) autobiographical memory. The purpose of this review is to present and critically evaluate the empirical literature on these domains in childhood depression and to propose areas for future investigations.

1.1. Depression in children and adolescents

At one time there was controversy over whether children and adolescents experienced depression. However, with the advent of structured interviews for children and phenomenological approaches to diagnosis (Rutter, 1998), epidemiological data have demonstrated that children and adolescents can, and do, become depressed (e.g. Kashani & Carlson, 1987). Depression in childhood is not rare and while it is somewhat difficult to reliably diagnose, it is more prevalent among adolescents than among children (Harrington, 1993). In community samples, prevalence rates in pre-adolescents range

from 0.4 to 2.5 per cent, and in adolescents from 0.4 to 8.3 percent (Birmaher et al., 1996). Girls and boys appear to be equally affected, whereas by adolescence the female to male ratio is approximately 2:1 which reflects the picture of adult depression (Lewinsohn, Clarke, Seeley, Rohde, 1994). Lifetime prevalence rates of major depressive disorder (MDD) in adolescents range from 15 to 20 per cent (Lewinsohn, Hops, Roberts, Seeley, & Andrews 1993). This close similarity to adult lifetime rates suggests that depression may begin in adolescence and continue into adulthood. Children and adolescents with depression often have a comorbid anxiety disorder, with prevalence rates ranging from 17% (Strauss, Lease, Last & Frances, 1988) to 73% (Mitchell, McCauley, Burke & Moss, 1988).

1.2. Child and adolescent depression literature

The first wave of childhood depression research during the 1980s typically focused on phenomenological issues, the development of reliable and valid diagnostic assessment methods, and the level of agreement observed between parent and child or adolescent concerning symptoms (Garber, Quiggle, & Shanley, 1990). A second wave of research over the last 15-20 years has focused on aetiology, course and prognosis, and treatment response. Researchers have tended to extend adult models of psychopathology downwards to explain and understand the same disorders in young people (e.g. Kaslow, Rehm, & Siegal, 1984; Leitenberg, Yost, & Carroll-Wilson, 1986) sometimes paying scant regard for the developmental differences between children and adults, and the differences between developmental stages of childhood. It is important to evaluate whether adult

models can be transported wholesale or, whether they should be modified in order to apply in different ways to young people at different stages of development. Current evidence suggests that childhood and adulthood depression are essentially the same disorder but that the experience of symptoms and their presentation may differ with age and as a function of the child's cognitive and social developmental level (Klein, Dougherty, & Olino, 2005). For example, younger children might appear sad but have difficulty reporting their mood, and prepubertal children may lose interest in their friends but are unlikely to experience decreased libido; whereas there is evidence that hopelessness and some vegetative and motivational symptoms may be more frequent in adolescents than in children (Weiss & Garber, 2003). Therefore, while the dynamic nature of depression across age provides a natural experiment in which to observe the effects of different cognitive factors and their role over the course of depression (Gotlib & Kaplan-Sommerfield, 1999), the application of cognitive models of adult depression should be examined against a backdrop of knowledge concerning normal development of cognitive factors (Kaslow, Adamson, & Collins, 2000).

A number of cognitive models have been extended downward to children and adolescents: these include, Beck's cognitive theory of depression, Seligman's learned helplessness theory, hopelessness theory, self-control theory, Bower's network theory, and Teasdale's differential activation hypothesis. Of these, Beck's cognitive theory and information processing model is the most well-researched and has led to the most significant developments in treatment and therefore will be presented first to provide the

theoretical framework for the empirical studies reviewed in subsequent sections.

2. COGNITIVE THEORIES OF DEPRESSION

2.1. Beck's theory

Beck proposed three concepts to explain depression, namely negative self-schemata, cognitive errors or faulty information processing, and the cognitive triad, (Beck, 1967; 1987). The concept of self-schemata is central to Beck's model. Schemata are structural representations of past experiences and knowledge that serve to underpin our perception, coding and interpretation of environmental information. As such, schemata are thought to guide attention, interpretation, memory and expectancies. It is hypothesised that new information is processed, categorised and evaluated through a matrix of positive and negative schemata representing different spheres of the individual's life. Negative schemata are thought to serve as causal factors and vulnerabilities for depression by influencing the selection, encoding, organisation, evaluation and retrieval of stimuli in the environment in a negative and pessimistic way.

Beck argued that depressive thinking is typically distorted so that individuals selectively attend to the negative even when alternative positive events and interpretations are plausible, thereby over-generalising and magnifying adversity while minimising or misinterpreting positive information. These information processing errors take place because individuals are guided by their pre-existing beliefs and assumptions; therefore, they see what they

expect to see and believe that which supports their pre-existing beliefs rather than being informed by the presented facts.

Negative schemata together with information processing errors are considered to reflect and maintain the cognitive triad, which refers to the characteristic thinking pattern that emphasises negative cognitions (memories, perceptions, interpretations, and expectations) about the self, the world, and the future. The negative self-view is manifested in low self-esteem, increased self-criticism, low self-evaluations and an underestimation of one's abilities. The negative world view leads depressed individuals to generate negatively biased explanations for the situations they encounter. The negative view of the future produces hopelessness about things resolving in the future. The negative thoughts produced are considered to be automatic, in the sense that they occur spontaneously, without deliberate choice or conscious motivation.

2.2. Information processing models

Information processing models propose that in vulnerable individuals, schemata are activated by relevant stimuli and once activated they provide access to a complex system of negative personal themes that direct a corresponding pattern of negative information processing that results in depression (Ingram, 1984). For example, following an interpersonal loss, the individual's schemata are activated giving rise to an attentional bias towards negative stimuli. This bias relates to the selective attention and memory for the processing of information related to loss and failure. Therefore, stimuli

consistent with the existing structures are elaborated and encoded, whereas inconsistent or irrelevant information is ignored or forgotten. Two influential theories are Bower's associative network model (1981; 1987; 1992) and Teasdale's differential activation hypothesis (1983;1988).

Bower's associative network model suggests that biases develop as a result of an associative connection of depressive memories existing within a network of emotion nodes. Each emotion node corresponds to a separate emotional state and becomes active when that state is experienced. Each emotion node develops associative connections with other nodes that are most often simultaneously activated with that emotion node. Bower argues that these nodes contain representations that are affectively congruent with this emotion. Therefore, because depression is often experienced when processing information related to loss or failure, associative connections develop between depression nodes and other nodes that contain negative representations.

The experience of a mood state such as depression introduces a systematic bias into the memory system because of the associative networks that have developed. Mood congruent memory effects are explained by spreading activation originating from the activated emotion node. The resultant activation of concepts and experiences related to the emotion facilitates the recall of events that are congruent with the affective state. Bower's model predicts general effects of mood on cognitive processing, whereby any

information processing requiring access to stored information is facilitated if this information is already activated.

Teasdale (1983; 1988) drew upon Bower's work and proposed a differential activation model of depression. He suggests that we all experience life events that produce mild dysphoria. However, when in a dysphoric mood, some individuals are considered vulnerable because of the way in which they function cognitively. Nonvulnerable individuals cope with their negative mood by self-soothing. Conversely, vulnerable individuals experience more severe levels of depression because for them depressed mood increases the accessibility of representations of depressing experiences and of negative interpretive constructs. As a result, they access more frequent negative memories; and experience negative biases in the way situations are perceived and interpreted; and negative biases in the way that inferences and predictions are made using information from the environment and from memory. These biased cognitive patterns are hypothesised to play a key role in influencing the severity and duration of depression. A vicious cycle develops in which depressed mood and cognitive processing reciprocally reinforce each other thereby intensifying and maintaining the depression. Therefore, once the person is dysphoric, the pattern of thinking that develops is more important than the original source of the depression in explaining how and why the depressed mood persists.

The difference between Bower and Teasdale's theories and Beck's propositions are that Bower and Teasdale argue that an individual first needs

to experience depressed mood before the depression-related biases emerge. In contrast, Beck suggests that cognitive factors related to depression are stable vulnerabilities that represent cognitive diatheses that are relatively independent of mood.

3. STUDIES OF DEPRESSION AND MEMORY IN CHILDHOOD

Research on depression and memory in children and adolescents has followed the lead from adult studies and covers two broad domains: memory bias for newly acquired experimental material, and autobiographical memories. These research domains with adults are well developed and have impressive pedigrees. As such, there are now good reviews (e.g. William et al., 1997) and meta-analyses regarding studies of newly acquired information (e.g. Matt, Vaquez, & Campbell, 1992) and autobiographical memory specificity (e.g. van Vreeswijk & de Wilde, 2004). Depression and memory research with children and adolescents is a younger and less well developed field, and as yet, there are no reviews or meta-analyses. Therefore, one of the main aims of the current review is to assimilate and evaluate empirical studies investigating first, explicit memory biases of newly acquired emotional material, and second, autobiographical memory in depressed adolescents. These studies investigating memory in childhood depression are summarised in Appendix 2.

3.1. Explicit memory bias for newly acquired emotional material (see Appendix 2, Table 1)

A meta-analysis of adult studies examining recall of positive or negative material (in the form of adjectives, sentences, or whole text) found that normal, non-depressed participants are biased towards the recall of positive information (Matt et al., 1992). Non-depressed individuals recalled, on average, eight percent more positive than negative material. Students with high scores on the Beck Depression Inventory recalled equal amounts of positive and negative material. Clinically depressed individuals recalled on average, ten percent more negative than positive material. Thus, there is evidence for mood-congruent recall in adults, which is consistent with the theories outlined above.

Memory studies of clinically depressed and non-clinically depressed children and adolescents have borrowed methods used with adults (e.g. self-referent encoding task, which is described below) and applied them to children and adolescents to examine the construct of self-schemata (e.g. Cole & Jordan, 1995; Hammen & Zupan, 1984; Prieto, Cole, & Tageson, 1992). Others have used a mother-referent encoding task to examine interpersonal-schemata (Rudolf, Hammen, & Burge, 1997). Other memory studies have used stories containing positive and negative material to examine self-schemata (e.g. Bishop, Dalgleish, & Yule, 2004; Hughes, Worchel, Stanton, Stanton, & Hall, 1990) and interpersonal-schemata (Rudolf et al., 1997). More recently, mood induction procedures have been used to examine cognitive reactivity and the

stability of memory biases (Taylor & Ingram, 1999; Timbremont & Braet, 2004).

In order to evaluate whether there is a specific memory bias profile in depressed children and adolescents, the studies have been organised according to assessment methods with the aim of conflating the findings across the studies. In this way, the impact of methodology on the profile of memory biases and development can be considered more clearly.

3.1.1. Self-referent encoding tasks (SRET)

In these tasks, young people are presented with a list of positive and negative trait adjectives. An encoding task is used where young people are asked either to process the structure of the word (“is this a long word?” – yes or no) or to make a decision about whether the word is self-referential (“is this word like you?” – yes or no). These instructions are used to direct the encoding of information to one of two levels of processing: i) a structural level, based on superficial characteristics of words; and ii) a substantive level, based on the extent to which words are self-relevant (Garber & Kaminski, 2000). Participants are then typically presented with an interference task to prevent recency effects. This is followed by an incidental recall task where participants recall as many adjectives as possible. The conceptual basis of the incidental recall task is that when an individual is depressed, schema activation is assumed to facilitate storage and enhance accessibility of schema-related material, thus increasing the likelihood of its recall.

The first study to investigate memory bias using in a SRET and incidental recall task with a community sample of mildly depressed and non-depressed children (aged 8-12 years) found that non-depressed children recalled a higher proportion of self-referentially encoded positive content words than similar structurally encoded words (Hammen & Zupan, 1984). This is considered to provide evidence of a positive self-schema and a positive memory bias. The non-clinically depressed children did not recall more self-referentially encoded negative words than similar structurally encoded words. This does not provide strong evidence of a negative self-schema. When comparing within-groups effects of positive relative to negative word recall, the non-depressed children recalled more positive words than negative, whereas the depressed children recalled equal numbers of positive and negative words. These findings suggest non-clinically depressed children lack the positive bias that is characteristic of non-depressed children. However, there was no evidence of a negative memory bias.

Clinically depressed children, non-depressed clinic children, and non-depressed community children (aged 8-12 years) have also demonstrated similar findings (Prieto et al., 1992). Here, both clinic and community non-depressed children recalled more positive than negative words reflecting a positive memory bias. In contrast, clinically depressed children did not differ in their recall of positive and negative words suggesting the absence of a positive memory bias. However, a limitation of this study was that group comparisons for negative word recall were not conducted, therefore, it was

unclear whether the depressed children showed a negative bias compared to the other groups.

Prieto et al.'s (1992) study also conducted a recognition task and all three groups of children accurately recognised more positive than negative words, but this difference was smaller in the group of depressed children. Prieto et al. found that recall of recently learned positive and negative material did not discriminate between the groups once the effects of word recognition were controlled. The authors suggest that the presence of a depressive self-schema might have affected the acquisition of new positive and/or negative information much more than it affected retrieval because recognition memory is considered to be a measure of acquisition/encoding, whereas recall is thought to relate to storage and/or retrieval.

Another study investigated positive and negative peer nominations of five competence domains (academic, social, athletic, conduct, appearance), and measured incidental recall of positive and negative self-referent adjectives relating to the competence domains in non-clinically depressed and non-depressed children and adolescents (aged 9-15 years) (Cole & Jordan, 1995). They controlled for concurrent depressive symptoms and found that positive and negative peer evaluations related significantly to children's ability to recall positive and negative self-referent information respectively. In addition, recall of negative information differed between the depressed and non-depressed groups as a function of school grade. The depressed group demonstrated much greater recall of negative words than the non-depressed

group by grade eight (age 14–15) but there were no differences between groups at grades four or six. The depressed group recalled fewer positive words than the non-depressed group consistently across all three grades.

Zupan, Hammen, & Jaenicke (1987) investigated children and adolescents (aged 8-16 years) who had mothers with affective disorder, chronic health problems or stress. Two groups were compared, children with current or past histories of diagnosable depression, and children with no history of depression. Consistent with previous findings, the non-depressed group endorsed and recalled more positive words compared to the depressed group. In contrast, the depressed group endorsed and recalled more negative words. Findings from this study suggest that non-depressed children show evidence of a positive memory bias (and positive self-schema) but that the depressed children not only lacked a positive memory bias but demonstrated a negative memory bias (and negative self-schema).

These four studies suggest that non-depressed children and adolescents show evidence of a positive memory bias across all ages, and that this bias is absent in depressed children and adolescents. However, findings concerning a negative memory bias are more inconsistent, with some studies demonstrating little evidence of a negative memory bias in younger children/adolescents (Cole & Jordan, 1995; Hammen & Zupan, 1984; Prieto et al., 1992), while others demonstrate the existence of such a bias (Zupan et al., 1997). When developmental effects have been examined more systematically there is evidence that a negative bias does seem to exist in

older adolescents (aged 14-15 years: Cole & Jordan, 1995). Cole & Jordan suggest that the cognitive developments associated with early adolescence might be necessary “before children are capable of the positively and negatively biased cognitions that seem to be characteristic of healthy and depressed adults, respectively” (p. 468). The issue emerging here is that it is unclear whether development influences the pattern of memory bias because studies generally do not examine it systematically.

3.1.2. Non-self referent encoding tasks

One study adapted the SRET and presented participants with a group of positive and negative trait adjectives and categorised neutral words, followed by intentional recall and recognition tasks because piloting had shown that children were recalling very low numbers of words using incidental recall only (Neshat-Doost, Taghavi, Moradi, Yule, & Dalgleish, 1998). Clinically depressed adolescents (aged 10-17 years) were compared to a matched non-depressed control group. Depressed adolescents recalled more negative than positive adjectives; whereas the control group recalled equivalent numbers of positive and negative adjectives. Developmental effects were also explored and, consistent with Cole and Jordan (1995), the depression-related memory bias became stronger with age.

Neutral stimuli were included in the study to provide a normative measure of memory performance for non-emotional material. Both groups recalled more non-trait neutral words than positive trait adjectives. However, the authors highlight the difficulties of finding a set of semantically interrelated, neutral

trait words because most trait words have *some* emotional loading; they settled on a set of categorised, non-trait neutral words (animal words) to control for semantic relatedness. This attempt to find a neutral set of words is a novel feature in studies of this type and prevents the explicit use of self-referent processing instructions. The findings are interesting because it has been suggested that it is self-referent processing that underlies the memory bias for negative information in depressed individuals. These results demonstrated the absence of a positive memory bias and the presence of a negative memory bias in clinically depressed adolescents that increased with age, but the extent to which the material was processed self-referentially is unclear.

This study reported an anomalous result in that community non-depressed adolescents did not show evidence of a positive processing bias. The authors do not discuss the finding, but one possible explanation might be that non-depressed participants did not process the words self-referentially, whereas, perhaps the depressed participants did. It is impossible to know whether there were any differences in the way that the two groups processed the positive and negative material. An alternative explanation is that the anomalous result might reflect the fact that the non-depressed group scored relatively highly on the Children's Depression Inventory (CDI) (mean 7.74). The CDI means of non-depressed groups in other studies are typically lower (less than 5). Thus, it might be that the positive memory bias is impeded at relatively low levels of depressive symptoms.

Another variant of the SRET was conducted by Rudolph et al. (1997) in the investigation of interpersonal schemata and social information processing regarding family and peers in a sample of non-depressed and depressed community children (aged 8-12 years). In one part of their study they adapted the SRET and directed participants to encode material with reference to participants' mothers or with reference to structural characteristics of the word and followed with the typical incidental recall task. Within-groups analyses showed that the non-depressed children recalled more positive than negative maternal attributes. By comparison, depressed children recalled positive and negative maternal trait words equally.

These findings demonstrate the existence of a positive memory bias in non-depressed children (providing evidence of a positive interpersonal-schema) and the lack of a positive memory bias, but no negative memory bias, in non-clinically depressed children (thus the evidence does not point to the existence of a negative interpersonal schema). The results are consistent with the self-schema studies with children of a similar age range (Cole & Jordan, 1995; Hammen & Zupan, 1984; Prieto et al., 1992).

3.1.3. Positive and negative stories

Other studies have used stories containing positive and negative material to investigate the recall and recognition memory of high and low non-clinically depressed children (Bishop et al., 2004; Hughes et al., 1990; Rudolf et al., 1997). The use of child-oriented materials has helped to demonstrate that memory biases are observable with samples of non-clinically depressed

children as young as 5 to 7 years of age (Bishop et al., 2004). However, Hughes et al., (1990) reported a negative memory bias in the non-depressed group that warrants further exploration of these studies.

Hughes et al. (1990) developed a story about a typical day in the life of a teenage girl and embedded positive and negative events to be intentionally recalled. They found a main effect indicating that non-clinically depressed and non-depressed adolescents (aged 10-13 years) recalled more negative than positive events. Therefore, a negative memory bias was shown by both groups. The findings that the non-depressed group had a negative memory bias contrasts with other studies. They also found a gender effect in that girls recalled more than boys, again, this finding has not been reported by other studies.

A possible explanation for these findings might relate to the way in which the material was encoded. No self-referential instructions were given so in a similar way to the Neshat-Doost et al. (1998) study, it is unclear how the narrative was processed. With that said, the fact that the girls remembered more of the story than the boys provides indirect evidence of some self-referential processing because the story was about a day in the life of a girl. Another possible explanation for these results is that there might have been a priming effect across event-type with some of the positive and negative events being similar in semantic category. For example, getting an answer wrong (negative) and getting a good grade (positive) are semantically similar and might have confounded differential recall effects of the positive and

negative information. Overall, the methodology was poor in this study and calls into question the validity of the findings.

A more methodologically sound study was conducted by Bishop et al. (2004). They developed 'the emotional stories recall task' comprising three core stories (a "park", a "beach", and a "going home" story), each of which came in three differently valenced versions (positive, negative and neutral) with the sex of the protagonist differing so that they could be matched to the participant. Participants were directed to encode the story self-referentially. The rationale for the new task was that memory biases for emotional information might be more easily observed with story material (with pictures) than with a task using single word stimuli that was developed for adult use and applied to children. One hundred and thirteen children completed the memory task. Participants (aged 5-11 years) were divided into three age groups and each age group was further subdivided into low- and high-non-clinically depressed groups. The results were consistent with Neshat-Doost et al.'s (1998) study, in that there was a negative memory bias for the non-clinically depressed group, while the non-depressed group showed even-handed recall of the positive and negative stories. These results were consistent across all age groups (contrasting with Neshat-Doost et al., 1998).

A story task about hypothetical mother-child interactions, which included positive and negative maternal attributes, was developed by Rudolf et al., (1997) in their study examining interpersonal schema. Participants were asked to recall how the child in the story described the mother and a

negativity index was calculated. Non-clinically depressed children showed greater relative recall of negative maternal attributes than did non-depressed children after the story task. Unfortunately, these researchers only calculated a negativity index and not a positivity index, thus no between-group conclusions can be drawn in relation to the positive maternal attributes described in the story. This finding is interesting compared to the results from the mother-referent encoding task, used in the same study, which did not find evidence of a negative memory bias in depressed children.

These studies offer preliminary support for the use of more ecologically valid and child-friendly methods that can measure mood-congruent memory biases, which perhaps more abstract methods have not been able to find with younger children (but have found with older adolescents).

Another issue from the studies reviewed so far is that it is not clear whether memory biases represent stable cognitive diatheses making young people more reactive to further episodes of depression in the face of stressful situations, or, whether they are purely correlates or consequences of depressed mood. The cognitive diathesis-stress hypothesis (Beck, 1967) suggests that cognitive vulnerability becomes latent in the absence of low mood. Therefore, one might expect negative cognitions to recede as individuals become less depressed. If this is the case, data from individuals in remission will be no different when compared to control participants unless the individual's mood is low. Researchers have investigated this issue using mood induction procedures (MIP) with adults and extant research supports

the concept of cognitive vulnerability to depression among adults (see Scher, Ingram, & Segal, 2005 for a review). At present, there are only a couple of studies using such designs to examine cognitive reactivity in children and adolescents (Taylor & Ingram, 1999; Timbremont & Braet, 2004).

3.1.4. Mood induction/priming designs and SRET

In the first of these studies (Taylor & Ingram, 1999), children (aged 8-12 years) were identified as high-risk if their mothers had a history of clinical depression, and low-risk if their mothers had no psychiatric history. Half of the children from the high- and low-risk groups were randomly assigned to an induced sad-mood condition designed to activate cognitive schemata prior to assessment, and half of each group were assigned to a neutral condition. A SRET and incidental recall task were administered. The high-risk children in a negative mood recalled a higher proportion of negative words than did the high-risk participants who were not in a negative mood, providing evidence of a negative memory bias (i.e. a cognitive vulnerability) when experiencing a low mood. No other differences were significant. The robust positive processing bias characteristic of non-depressed individuals was not evident in the recall data of this study (but was evident in the number of positive adjectives endorsed by low-risk participants and by high-risk participants who were not in a negative mood). It is not clear why this might be the case.

The priming design of this study is a novel contribution to the field, but the MIP used seems problematic. Children were asked to think of something that had happened to them that made them feel bad for 30 seconds; they

were then asked to describe the scenario. This is problematic because, first, asking children to think about and report a scenario that made them feel bad might have actually primed them in relation to the *content* of the trait adjectives presented to them. Second, a 30-second mood manipulation seems a short time to lower mood significantly. Third, although a mood manipulation check was used, it consisted of a page of five drawn facial expressions varying in intensity (smiling through neutral to frowning). It is conceivable that children of approximately 10 years old will respond to the demand characteristics of the mood-induction and not answer the mood manipulation check truthfully. Finally, such demand characteristics might also impact on the extent to which children endorsed and subsequently recalled self-referent adjectives.

The other study evaluating cognitive vulnerability using a MIP examined recall in groups of never depressed, currently depressed and remitted depressed in-patients aged 8-16 years old (Timbremont & Braet, 2004). All participants watched a 13-minute film about being bullied prior to completing a SRET and an intentional recall task. The never depressed group recalled more positive self-descriptive words compared to the currently depressed and remitted depressed groups demonstrating a positive bias. The currently depressed group recalled more negative self-descriptive words compared to the never depressed group, demonstrating a negative bias. The remitted depressed individuals did not show a positive or negative processing bias when in a negative mood compared to the other groups. Within group analyses showed that the depressed and remitted depressed groups recalled

positive and negative self-descriptive words equally often, whereas the never depressed children recalled more positive than negative words. Therefore, the remitted depressed group appeared to have a cognitive vulnerability (i.e. the lack of a positive processing bias) which came to the fore when in a negative mood. A limitation of the study was that there was no neutral MIP in addition to the sad MIP (unlike the Taylor & Ingram, (1999) study). Consequently, it cannot be ascertained whether the lack of a positive memory bias in the remitted depressed group was latent before the mood induction.

3.1.5. Common limitations

The studies reviewed above have had some of their shortcomings highlighted but there are a number of common limitations that affect this body of research and the conclusions that can be drawn from them. Some studies have used community samples of children and/or adolescents and typically classified them into non-depressed/low-depression and depressed/high-depression groups on the basis of using the self-report Children's Depression Inventory (CDI, Kovacs, 1981). However, the CDI is not a diagnostic tool and it is unclear how the findings of studies might generalise to young people meeting DSM-IV criteria for depression. Only one study used a semi-structured diagnostic interview with parents and children (Zupan et al., 1987) but did not report details of other diagnostic criteria met by the children implying that perhaps they only conducted the section for affective disorders (ultimately using the CDI to group participants). Unfortunately, the study demonstrating memory biases in very young children is the only study that

does not use the CDI (Bishop et al., 2004), making comparisons to other studies more difficult. Studies using clinical populations have used the CDI to group participants (e.g. Timbremont & Braet, 2004), or they have used diagnoses from clinic records (Prieto et al., 1992) or consensual diagnostic decisions from mental health teams (Neshat-Doost et al., 1998), which raises questions about the reliability of their diagnoses.

Another issue highlighted by not using a diagnostic interview is that some studies have not assessed the presence of other comorbid diagnoses/difficulties. Given the high rates of co-morbidity in young people with depression, failure to measure other concurrent problems (e.g. anxiety) is a potentially significant omission. Some studies have evaluated anxiety levels and severity of externalising problems as control variables to judge the specificity of findings to depression per se. Their results suggest that anxiety and conduct problems do not make unique contributions, beyond depression, to the reported effects (Bishop et al., 2004; Cole & Jordan, 1995; Neshat-Doost, et al., 1998; Rudolph et al., 1997). Nevertheless, it is important to have comprehensive descriptions of sample characteristics in order to consider whether the mix of difficulties young people experience may account for different findings.

It could be argued that the studies using single word stimuli relate little to the mass of information to which individuals are exposed every day. Therefore, do they lack ecological validity in measuring memory biases? The most methodologically innovative and perhaps developmentally sensitive study

managed to identify that very young non-clinically depressed children show evidence of a negative memory bias (Bishop et al., 2004). This finding contrasts with other studies suggesting that these effects emerge as children develop cognitively in their early adolescence (Cole & Jordan, 1995; Neshat-Doost et al., 1998). It could be argued that more developmentally appropriate methods are more sensitive in measuring effects, if present. Alternatively, it might be that this method tapped into multiple processing channels in that the material was a narrative story, included pictures, and self-referent instructions. It might be that more elaborative encoding took place in relation to the materials, which might help to explain why biases were observed in very young children. While this study was labour intensive (e.g. transcription of protocols, training coders of recalled story protocols), it suggests study designs might need to change in order to examine developmental effects.

Finally, these studies inform us about the encoding and/or retrieval of newly acquired emotional material but cannot shed light on the way in which depressive activation or self-schemata/interpersonal schemata affect the retrieval of material learned some time ago. There do not appear to be any studies that have manipulated mood at encoding versus retrieval or delayed the time of retrieval to investigate how this impacts on recall. Future research might want to consider these issues. The other problem with research providing newly acquired emotional material is that the salience of the material (positive, neutral, or negative) for participants is not known. Whilst, many of the designs are based on the idea that depressed individuals

process negative material more easily, the absence of a negative or positive bias might relate to the use of personally meaningless sets of stimuli.

As highlighted above, the studies reviewed so far relate to recall of newly encoded information but do not inform us about the retrieval of self-relevant information experienced, encoded and stored some time ago, perhaps even before the child became depressed. Therefore, studies investigating the accessibility and retrieval of autobiographical memories offer to broaden our understanding of the role of memory in depression. Autobiographical memories (AMs) refer to those memories that individuals retrieve which have personal salience, which are not part of a generic script or semantic memory, but which form their own personal autobiography. The following sections critically review the literature on adolescent AM and depression, and discuss the role of AM in thinking about the future.

3.2. Autobiographical memory studies

In the mid-1980s there was a fundamental shift within the adult mood and memory field when it was noticed that a mood congruent retrieval bias in parasuicide patients appeared to be associated with patients responding with inappropriately general memories (Williams & Broadbent, 1986). That study started the exploration of qualitative differences in memories (i.e. specificity and overgenerality) in individuals experiencing different psychopathology. Specific autobiographical memories (AMs) are typically used to develop a self- and other- concept, problem solve, regulate emotions and pursue goals (Kuyken, 2006). The autobiographical memory test (AMT; Williams &

Broadbent, 1986) is the procedure typically used to measure autobiographical recall. Positive and negative cue words (e.g. happy, safe, interested, successful, surprised, sad, angry, clumsy, hurt, lonely) are presented to participants who are then instructed to recall specific events in response to each cue word and are given a limited period of time to recall a memory. Responses are typically independently coded and categorised as specific if they last less than one day and include event specific *time* and *place* information (e.g. to the cue word, angry, “with my supervisor on Monday”), and categoric if they are a memory of a general class of repeated events (e.g. to the cue word, angry - “when I’ve had a row”) (Williams, 1996).

Experimental studies have consistently found that when depressed adults are asked to recall specific AMs, they are more likely to retrieve categoric overgeneral descriptions than non-depressed controls (see Dalgleish & Watts, 1990, for a review). The finding that depressed adults have difficulty retrieving specific memories and that their AM retrieval tends to be overgeneral is a robust effect (see van Vreeswijk & de Wilde, 2004, for a recent meta-analysis of the adult literature). Depressed individuals are considered to be cut-off from both their positive and negative pasts (Kuyken, 2006). At present, it is unclear whether overgeneral AM arises from childhood adversity or depression.

3.2.1. Autobiographical memory studies and adolescent depression (see Appendix 2, Table 2)

This is an emerging research field with children and adolescents, and to date, there are only a handful of studies of varying quality investigating AMs and depression in adolescents (see Appendix 2, Table 2 for a summary of these studies).

From preliminary research findings it appears that adolescents currently experiencing depression recall less specific negative memories (Orbach, Lamb, Sternberg, Williams, & Dawud-Noursi, 2001; Park, Goodyer, & Teasdale, 2002; 2004), and less specific positive memories when compared to non-depressed controls (Park et al., 2002; 2004). However, there is evidence to suggest that this effect is not specific to depression and is present in adolescents with other diagnoses (Park et al., 2002; Swales, Williams, & Wood, 2001). Depression severity appears to be positively related to overgeneral memory to negative cues, whereas once depression has remitted, positive and not negative overgeneral memories seem to be more common when compared to controls (Park et al., 2002).

An important finding is that rumination increases overgeneral memories to negative cues in depressed adolescents and this finding appears to be specific to depressed adolescents (Park et al., 2004). These researchers examined the effect of induced rumination and distraction on mood and overgeneral AM in four groups of adolescents; those meeting criteria for major depressive disorder (MDD), those with MDD in partial remission, non-

MDD psychiatric participants, and community controls. Participants had two appointments where they received an attentional manipulation task of rumination (e.g. “think about your character and who you strive to be”) at time one, and distraction (e.g. “imagine a boat slowly crossing the Atlantic”) at time two. The AMT was conducted both before and after the manipulation. Rumination versus distraction was found to increase overgeneral memories to negative cues in depressed participants, however, this increase was not related to mood change. This finding was specific to depressed participants, being absent in non-depressed psychiatric and community control participants. No effects were found for age, intelligence and comorbid diagnoses. This was an impressive study due to the recruitment of good numbers of adolescents with first episode depression (and informative comparison groups); the researcher being blind to the participants’ diagnostic status; and the thorough use of diagnostic procedures, with self-reported and observer-rated measures of depression severity.

The relationship between intelligence (IQ) and AMs is inconclusive at present due to inconsistent findings (Park et al., 2002, 2004). As part of their study, Park et al., (2002) examined whether overgeneral memory (measured by the AMT) was a reflection of general cognitive abilities. They compared five groups of adolescents, those meeting criteria for MDD; those with MDD in partial remission; those with MDD in full remission; non-MDD psychiatric participants; and community controls. IQ was estimated using vocabulary and block design subtests of the Wechsler Intelligence Scale for Children. They found that IQ was inversely related to categoric memory across clinical

and control groups, with lower IQ relating to higher overgeneral memory, particularly to negative cues.

The authors discuss the importance of considering working memory capacity in relation to overgeneral memory, given that a negative association between overgeneral memory and both IQ and working memory has been found in older people (Winthorpe & Rabbit, 1996). They report how the association was lost after controlling for working memory capacity. Park et al. (2002) draw attention to Williams' (1996) suggestion that categoric overgeneral memory comes about when a memory search is aborted because it is too effortful relative to working memory capacity. This implies that overgenerality emerges in the face of lowered cognitive resources. The authors assert that depressed adolescents with lower IQs may be likely to use this style of memory retrieval, which could make them at risk for self-harm and suicidality.

It is suggested that overgeneral memory retrieval may result in 'psychological entrapment' whereby access to the solutions to life situations is limited due to overgenerality, therefore hopelessness increases and suicidal and parasuicidal behaviours become increasingly likely (Williams, 1997). Swales et al., (2001) examined the relationship between mood, the specificity of AM (using the AMT), and hopelessness in adolescent psychiatric in-patients with heterogeneous diagnoses and non-clinical controls. The results showed that the clinical group was less specific in AM retrieval to positive and negative cues than controls and took longer to produce a memory in response to

positive cues. However, hopelessness was positively correlated with specificity for negative cues in the clinical group.

While this is the only study that has attempted to formally examine the link between overgeneral memory and hopelessness in adolescents (unfortunately, neither hopelessness nor working memory were measured in Park et al.'s, 2002 study), it appears to be fundamentally flawed for the following reasons: first, that 60 percent of the sample repeated the same memory in response to a number of different negative cues; and second, Park et al., (2002) reported that, "some of these adolescents were in therapy with the researcher who administered the AMT, and many of these 'specific' memories related to repeated memories of adverse experiences that were being addressed in therapy" (p.274). Swales et al. (2001) unfortunately did not report this in their interpretation of findings or as an important limitation of the investigation.

3.2.2. Common limitations

While the extant literature investigating AM and adolescent depression has been reviewed above, it is somewhat difficult to draw conclusions from these studies for a variety of reasons. First, while the AMT has mostly been used to measure AM, it is not the only method employed, which can be a strength if findings are convergent, but not if only negative (and not positive) cues or questions are used to elicit AMs (e.g. Orbach et al., 2001). Second, the way in which the AMT is administered has not been consistent across studies (e.g. number of different cues used, number of different practice items

presented, time permitted to respond) and these methodological differences have been shown to influence AM scores in a recent meta-analysis of adult AM studies (van Vreeswijk & de Wilde, 2004). Third, some studies report specific memories (e.g. Swales et al., 2001), whereas others report overgeneral categoric memories (e.g. Park et al., 2002, 2004). Fourth, the samples used vary widely from young people who have experienced domestic violence (Orbach et al. 2001), to unstratified psychiatric groups (Swales et al., 2001), to highly stratified psychiatric groups (Park et al., 2002, 2004), with each study using more or less rigorous ways to classify the groups. Finally, each study has diverse aims making it more difficult to conflate findings. Progress in this field would be improved by addressing these issues in future research.

3.3. Memories and future thinking

From the literature reviewed so far, the assertion that depressed individuals who retrieve more overgeneral memories (particularly to positive cues) take longer to recover, are more hopeless, show deficits in interpersonal problem solving and find it difficult to imagine the future in any way (Park et al., 2002) appears to be rather premature. There has been a tradition of examining depression and memory in isolation. However, an interesting departure from this approach has been undertaken by Andrew MacLeod and colleagues. They developed a different method, 'the personal future task', to examine participants' ability to generate future expectancies. These researchers collaborated with Williams and his colleagues and published a paper of three adult studies investigating the specificity of AM and imageability of the future

(Williams, Ellis, Tyers, Healy, Rose, & MacLeod, 1996). In the first study, suicidal adult patients and non-depressed controls generated autobiographical memories of events and possible future events in response to neutral, positive and negative sentence cues. Suicidal patients' memory and future responses were found to be more general. In addition, the level of specificity for the past and future was significantly correlated in both groups. Although hopelessness was measured no correlational analyses were reported. In the second and third studies, the effect of an experimental manipulation of retrieval style was examined by instructing participants to retrieve specific events or categoric summaries of events (i.e. overgeneral memories) from their past (experiment two) or by giving high- or low-imageable words to cue memories (experiment three). The induction of a generic retrieval style resulted in a reduced specificity of images of the future.

In further work MacLeod, Tata, Kentish, and Jacobsen (1997) developed 'the memory/future thinking task' in a study with adults with panic disorder, depression and healthy controls to examine the pattern of memories and expectancies in depression and anxiety. They found that anxiety was associated with generating more negative experiences but not fewer positive experiences, whereas depression was associated with generating fewer positive experiences but not more negative experiences. Similar patterns for recall of past experiences and anticipation of future experiences were observed. This method is interesting because it does not constrain the individual to generate a specific number of responses to imposed (and

perhaps non-salient) cues, and also permits comparisons and relationships between memories and expectancies to be formally examined.

For the memory task participants are required to think of past experiences occurring over three different time periods: the past week, the past year, and the past 5-to-10 years. The time cues are presented verbally, one at a time. There are two conditions: one where participants are asked to think of positive past experiences (positive cue), and the other where participants are asked to think of negative past experiences (negative cue). For each of the three time periods in each of the two conditions, participants are given one minute to generate as many responses as possible. The future thinking task is similar to the memory task. The form is the same as the memory task but the focus is on the future rather than the past.

3.3.1. Memories and future thinking in adolescents

To date, there is only one study using this method with adolescents (Miles, MacLeod & Pote, 2004, see Appendix 2, Table 3). Miles et al. employed the memory/future thinking task to examine positive and negative memories and expectancies in 123 non-clinical adolescents. A verbal fluency control task was administered; and positive and negative affect was also measured.

Adolescents were divided into groups on the basis of self-reported depression and anxiety scores, and the effects of anxiety and depression were analysed separately due to the overlap of anxiety and depression.

The depressed group recalled significantly more negative memories compared to the non-depressed controls, but the groups did not differ from each other in the number of positive memories they recalled. The same pattern of results was found for the anxious group compared to the control group. However, having covaried out the relative influence of anxiety in the first set of analyses, and depression in the second set of analyses both effects were lost. This suggested that the depressed adolescents' propensity to generate more negative responses was due to the overlap of anxiety with depression rather than any unique aspect of depression. Similarly, anxious participants' tendency to generate more negative responses compared to controls was due to the overlap of depression with anxiety rather than any unique aspect of anxiety unrelated to depression. Correlations across the whole sample showed that adolescents with high negative affect produced more negative memories and expectancies and those high in positive affect produced more positive memories and expectancies.

Therefore, Miles et al., (2004) contrasts with MacLeod et al.'s (1997) adult study by finding, contrary to their predictions, that adolescents with higher levels of depression did not generate fewer positive memories or expectancies. This finding seems surprising because lower levels of positive affect were found in depressed youngsters when compared to controls even after covarying out any overlapping anxiety effects. A possible explanation for this finding is that the severity of depression in the non-clinical sample was not high enough to impede the retrieval of positive memories and the production of positive expectations about the future. Given that a reduction

in positive expectations (rather than an increase in negative expectations) has been associated with hopelessness in adults (e.g. MacLeod, Tata, Tyrer, Schmidt, Davidson, & Thompson, 2005), Miles et al. suggested that the failure to observe a reduction of positive thinking in adolescents may be due to the fact that youngsters do not experience the same degree of hopelessness as adults when they are depressed. However, because hopelessness was not measured in their study it is impossible to conclude whether the lack of positive memories and/or expectancies in depressed adolescents was due to low levels of hopelessness or to less severe levels of depression.

4. DISCUSSION AND FUTURE DIRECTIONS

This review has examined research investigating the role of memory in childhood depression. Clarifying the role of memory in depression in children and adolescents is important in order to: a) understand the basic cognition-emotion relations; b) develop theory; and c) develop cognitive-based treatments targeted at different cognitive operations and products (Dalgleish et al., 2003). Compared to the vast adult literature there are relatively few research studies investigating memory in depressed children and adolescents. The two main research domains on depression and memory in children and adolescents have investigated explicit memory biases for i) newly acquired experimental emotional material in the form of word lists encoded to different levels, and stories, and ii) autobiographical memories.

In considering experimental emotional material presented, encoded and retrieved during an experimental appointment it appears that convergent patterns are apparent from studies using a variety of different methods. The findings suggest that depressed mood promotes the recall of negative memories either by impeding the retrieval of positive material (Cole & Jordan, 1995; Hammen & Zupan, 1984; Prieto et al., 1992; Rudolph et al., 1997) or by enhancing the recall of negative material (Bishop et al., 2004; Neshat – Doost et al., 1998; Rudolph et al., 1997; Zupan et al., 1987).

At present it is unclear whether this effect holds true across different developmental stages because so few studies have examined developmental effects. Where attempts have been made, the findings are inconsistent; for example, some studies have only found evidence of a negative memory bias in older adolescents (Cole & Jordan, 1995; Neshat-Doost, 1998), whereas others have found negative memory biases in children as young as five years old (Bishop et al., 2004). It is unclear why developmental issues have not been more widely studied, but it might relate to pragmatic difficulties in conducting longitudinal research, or difficulties recruiting participants (especially given motivational issues in depression, and/or parents might be reluctant to provide consent given elevated levels of concern about their child). It has been argued that adult methods frequently used in studies (e.g. the use of word lists) might be limited in their application with younger participants in the face of different levels of cognitive and emotional development. The appropriateness and sensitivity of the assessment measures needs careful consideration with different age groups.

While different methods offer the opportunity to examine the convergence of patterns it also introduces a complication because it is probable that the different methods tap into different levels of memory processes. For example, making a judgement about structural features of single words is a less elaborative process than endorsing words as self-descriptive (Williams et al., 1997), which is still further a less elaborative process than the presentation of narrative stories either with or without pictures (e.g. Bishop et al., 2004; Rudolf et al., 1997). This suggests that different encoding and/or storage processes are operating that might affect retrieval in different ways. At present, it is not clear whether the observed recall biases reflect encoding, storage and/or retrieval biases. Prieto et al., (1992) suggested that the presence of a depressive self-schema might have affected the acquisition of new positive and/or negative information more than it affected retrieval because once the effects of word recognition were controlled for, recall of positive and negative material did not discriminate between the groups. They suggest that recognition memory is a measure of acquisition/encoding, whereas recall relates to storage and/or retrieval. Future studies should control for these factors.

The review has demonstrated that clearer patterns in the data do not emerge on the basis of severity of symptoms, which would be predicted from the findings of adult studies (Matt et al., 1992). This could be interpreted as a generalised effect of depressed mood promoting the recall of negative memories either by impeding the retrieval of positive material or enhancing the recall of negative material in both clinically depressed and non-clinically

depressed individuals. However, given the poor methods used to assess participant psychopathology (and comorbidity) more specific patterns might emerge if the stratification of samples is improved. This needs to be addressed in future research if we hope to generalise findings to specific populations.

In considering studies investigating memories of personally salient events (autobiographical memories) in adolescents with depressed mood, it must be noted that the conclusions of the review are drawn from a small number of studies and are therefore tentative. It appears that overgeneral memory in adolescents can be assessed using different cueing techniques. While the autobiographical memory test is typically used, Orbach et al., (2001) coded responses to the Family Disagreements Questionnaire (FDQ) and found evidence of overgeneral memories. Although it was unclear from their study whether the FDQ cued positive AMs.

Research suggests there is evidence that overgeneral memories are more frequent in adolescents experiencing depressive symptoms when compared to community controls (Orbach et al., 2001; Swales et al., 2001; Park et al., 2002; 2004). However, while depression severity appears to be positively related to overgeneral memory (Orbach et al., 2001; Swales, et al., 2001; Park et al., 2002), it is not specific to depression and has been observed in well stratified samples of psychiatric control participants in equal proportions.

Positive, and not negative overgeneral memory, seems to persist in adolescents whose depression has remitted. Park et al., (2002) cite Williams et al.'s, (1996) suggestion that overgeneral memory to positive cues might relate to a difficulty in the ability to access positive past experiences in order to imagine positive future outcomes. Other studies by MacLeod and colleagues examining the specificity patterns of positive and negative memories and expectancies are relevant here. AMs are typically investigated using positive, negative and sometimes neutral cues in equal quantity. However, the quantity *and* quality of memories (and expectancies) are likely to be important in depression (c.f. MacLeod et al., 1997; Williams et al., 1996). Further, the quantity and quality of AMs might relate to hopelessness in an important way. It is acknowledged that the AMT was developed to examine the *qualitative* nature of AMs, but it is not clear whether under natural conditions depressed individuals preferentially process more negative overgeneral AMs relative to positive or whether they tend to occur in equal proportions and how this relates to hopelessness. Other ways to assess this might be to use ambiguous words/sentences as cues, or to use a general cue (e.g. "can you tell me of as many specific experiences as possible when something positive [or negative] happened?"). These issues remain unexamined in depressed children and/or adolescents to date.

What does seem clear is that rumination appears to increase overgeneral memories to negative cues in depressed participants and seems to be independent of mood (Park et al., 2004). Follow-up studies might help to determine whether positive overgeneral memories predict the persistence of

depression in adolescents (as has been found in adults [Brittlebank, Scott, Williams, & Ferrier, 1993]) or predict recurrence of depression in fully remitted adolescents.

Thus far, there are no studies investigating developmental effects on the specificity of AM in depressed children. Williams (1996) reviewed evidence from developmental psychology and from studies of elderly brain damaged groups to show how the ability to inhibit relatively automatic categoric description processes develops during the third and fourth year of life, and how this ability is affected by reduced working memory capacity in old age, and with brain damage. In each of these groups, general AM is the result. Further developmental research including studies examining working memory will help to identify the variables influencing specificity and generality of AM.

4.1. Theoretical implications

Beck's cognitive theory suggests the importance of cognitive mediating factors in the development, maintenance, and treatment of depression. According to Beck, depressed individuals systematically distort reality so that their negative bias is confirmed. Negative schemata together with information processing errors are considered to reflect and maintain negative cognitions about the self, the world, and the future. The majority of the studies investigating the retrieval of newly acquired information have been designed to test self- or other-schema concepts. While it is plausible that the observed effects could arise through the activation of schema structures,

they might also arise from different selection processes or strategies employed by individuals (Williams et al., 1997). For example, negative self- or mother-descriptive information might be more accessible because it is already activated, or because it has been frequently activated in the past so as to make it pervasively accessible. Thus, the findings can be interpreted equally well with network/activation models (e.g. Bower, 1981; Teasdale, 1983) in that rather than depressed individuals possessing different cognitive structures than non-depressed individuals, depressed mood might be priming the selection of negative information in memory or selection might be well practised as to become semi-automated.

Cognitive vulnerability or reactivity studies can help to throw light on this issue. If one takes the self-schema interpretation forward one might expect a negative self-schema to persist over time. Timbremont and Braet's (2004) study showed after a sad mood induction that never depressed participants demonstrated a positive memory bias, currently depressed participants showed a negative memory bias, and remitted depressed individuals did not show a positive or a negative memory bias when in a negative mood. This indicates that retrieval operations had not returned to normal after recovering from depression and also suggests that negative recall for self-referent material is not stable over time; therefore studies like this do not lend support for the consistent influence of a negative self-schema. But it is perhaps early to assert such a conclusion particularly when it is suggested that these structures become latent in the absence of negative mood. The aforementioned study did not evaluate recall of self-relevant material in a

neutral mood therefore it is unclear from the study whether the idea of latent schemata could be supported. Indeed, Taylor and Ingram's (1999) finding that high risk children in a sad mood recalled more negative material than high risk children in a neutral mood could support such an idea. However, Williams et al. (1997) suggest findings such as this can also be explained in terms of events or emotional states facilitating the recall of congruent self-related material which in turn plays a maintaining role in depressed mood by selectively activating unpleasant episodic and semantic information in memory (Teasdale, 1983; 1988).

Beck's theory, and theories that focus on relatively passive activation process do not provide a good explanation of the literature on specific and overgeneral encoding and retrieval processes of AM. Williams et al., (1997) suggest that the field of mood and memory "should move away from generalist theories of cognition and emotion (such as schema or network theories) that [have] failed to distinguish between different aspects or stages of information processing" (p. xi). They proposed a strategic processing model and suggested that during retrieval the hierarchical search process from semantic associates to categorical summary memories to specific memories locks at the intermediate level as a form of emotional avoidance associated with event-specific knowledge (Kuyken, 2006). They hypothesised that this cognitive style becomes over-learned in response to traumatic events experienced early in life because the avoidance of negative emotion is negatively reinforcing. At the retrieval stage, when summary information (e.g. failing at something) enters consciousness, the emotion

associated with sensory and perceptual event-specific information (e.g. unhappiness) signals the executive system to inhibit event-specific knowledge and truncate the memory retrieval process resulting in a fragment of a negative specific episode (e.g. "I've always failed"). However, the retrieval process attempts another iteration (e.g. "I was never good at sports"), followed by several others (e.g. "I failed at school", "I didn't have many friends", "I failed my parents" etc.). Williams (1996) coined the term "mnemonic interlock" to describe the process which results in an over-elaboration of categories, encouraged by and itself encouraging ruminative self-focus.

This explanation is consistent with findings that adults with depression, parasuicidal behaviour and post traumatic stress disorder all demonstrate overgeneral memories. From this review there is growing evidence of these processes operating in adolescents. In their model, overgeneral encoding processes are often paired with reduced short-term memory capacity during retrieval, resulting in long-term memory deficits including recalling predominantly negative memories of the past and more negatively valenced (or perhaps less positive) new material (Williams et al., 1997). Future research investigating the role of working memory in relation to overgeneral memories will help to shed light on whether there is empirical support for these claims.

4.2. Clinical implications

Despite the under-developed cognitive theoretical framework for children and adolescents there is an increasing emphasis being placed on the application of cognitive behavioural therapy (CBT) for the treatment of childhood depression (e.g. NICE, 2005) and empirical support is growing (Birmaher, Ryan, Williamson, Brent, & Kaufman, 1996; Curry, 2001; Kaslow & Thompson, 1998; Kazdin & Weisz, 1998; Michael & Crowley, 2002). While it is beyond the scope of this paper to review treatment studies, in relation to the literature reviewed herein, several different treatment approaches for depression are implicated (obviously being mindful of the young person's level of cognitive and emotional development (c.f. Piaget, 1964; Vygotsky, 1962)). First, identifying negative memory biases or the lack of positive biases can help to draw attention explicitly to memory processing (individuals can be unaware of their biases). In addition, helping depressed individuals to learn strategies to help direct their memory might lead them to gain more control over their memory. Second, understanding self-schemata and the hypothesised role they play in memory processing can lead to treatments based on changing self-schemas. This is especially pertinent with adolescents because they are negotiating a critical developmental period of identity and self-formation. One might argue that negative self-schemata might be more amenable to change, or positive self-schemata more amenable to bolstering during these years. Third, attentional training (i.e. redirecting attention during encoding experiences, or, using distraction techniques in place of rumination) might help to make subsequent retrieval more specific (Park et al., 2004), thereby potentially reducing hopelessness

and parasuicidal behaviour. Fourthly, behavioural activation could serve to influence mood and self-schemata by offering potential opportunities for success. This in turn could influence the activation/priming and memory retrieval processes that take place.

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EMPIRICAL PAPER

Memories, expectancies and hopelessness in depressed and anxious adolescents

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*Clinical Psychology and Psychotherapy was used as a guide in determining
the preparation of this paper (see Appendix 3 for guide for authors).*

ABSTRACT

In adults there is evidence that depression is related to a reduction in positive memories and expectations (whereas anxiety is related to an increase in negative memories and expectations). This reduction of positive expectations has been linked to hopelessness and parasuicidal behaviour. The present study examined whether the same pattern would exist in a clinical sample of depressed and anxious adolescents. Two participant groups, clinically referred adolescents with depression and anxiety (N=9) and non-clinical community adolescents (N=40) were recruited. Recall and anticipation of positive and negative experiences were examined by administering the personal memory/future thinking task. Participants were asked to generate positive and negative memories and expectations about the future in response to three time cues (a week, a year, 5-to-10 years). Participants also completed the voice Diagnostic Interview Schedule for Children, and self-report measures of depression, anxiety and hopelessness. Three groups were compared (clinical depressed and anxious [n=9], non-clinical sub-threshold anxious [n=13], and non-clinical [n=13]). Clinical adolescents differed from non-clinical adolescents in producing fewer positive memories and expectations but the groups did not differ in the number of negative memories and expectations produced. Preliminary evidence suggested that self-reported hopelessness in clinical adolescents was associated with fewer positive memories, whereas hopelessness was related to more negative memories in non-clinical adolescents. The results highlight the importance of positive cognitions in depressed and anxious adolescents and offers preliminary evidence that the mechanisms involved in adolescent hopelessness may be different to adults.

INTRODUCTION

The phenomenon of childhood depression has only been acknowledged relatively recently and yet it is an important area for research because it is associated with problems in school, family and peer functioning (Lewinsohn & Essau, 2002). It is also associated with suicidal behaviours (Bridge, Goldstein, & Brent, 2006; Spirito, Valeri, Boergers, & Donaldson, 2003). In fact, suicide is the second leading cause of death in youth in the UK, and the incidence of suicide increases steadily across the teenage years (Maughan, Brock, & Ladva, 2004). Prevalence estimates of depression in youngsters from the general population range from 0.4% to 8.3% (Birmaher et al., 1996; Fleming & Offord, 1990; Lewinsohn, Clarke, Seeley, & Rohde, 1994). Depressed young patients remain at risk for further episodes of depression during their teenage years (McCauley, Myers, Mitchell, Calderon, Schloredt, & Treder, 1993) and this risk of recurrent depression and associated dysfunction persists into adulthood (Harrington, Fudge, Rutter, Pickles, & Hill, 1990). Depression rarely occurs by itself and comorbidity is the rule rather than the exception (Hammen & Compas, 1994). There is a strong relationship between depression and anxiety with comorbidity rates between these disorders in young people ranging from 17% (Strauss, Lease, Last & Frances, 1988) to 73% (Mitchell, McCauley, Burke & Moss, 1988).

At present, there are no specific cognitive theories of childhood depression. Researchers investigating cognitive aspects of childhood and adolescent depression have extended adult theories of depression downwards to young people. However, it is not clear whether this strategy provides an adequate

explanation of depression in children and adolescents. The application of these theories in such a wholesale fashion assumes direct continuity between childhood and adulthood depression and that the presentation of depression in childhood is the same as in adulthood (Gotlib & Kaplan-Sommerfeld, 1999). Longitudinal studies throw the best light on this issue, but they are relatively few and far between. Current evidence suggests that childhood and adulthood depression are essentially the same disorder but that the experience of symptoms, and their presentation, may differ with age and as a function of the child's cognitive and social developmental level (Klein, Dougherty, & Olino, 2005). For example, younger children might appear sad but have difficulty reporting their mood, and prepubertal children may lose interest in their friends but are unlikely to experience decreased libido, whereas there is evidence that hopelessness and some vegetative and motivational symptoms may be more frequent in adolescents than in children (Weiss & Garber, 2003). Therefore, while preliminary evidence suggests the utility of drawing on adult models, it is important to be cautious in their application given the differences in phenomenology and presentation.

A number of cognitive models have been extended downward to children and adolescents including Beck's cognitive theory of depression, Seligman's learned helplessness theory, hopelessness theory, self-control theory, Bower's network theory, and Teasdale's differential activation hypothesis. In general, all these theories hypothesise that depression is associated with negative cognitive biases in attention, memory, attributions and expectancies, and in the perception and interpretation of information.

Probably the most prominent and well researched cognitive theory is that developed by Beck (1967). Beck suggests that emotional and behavioural problems are not determined by external reality itself but rather by the maladaptive interpretation superimposed on it. According to Beck, a negative cognitive triad of beliefs, about the self, the world, and the future play an aetiological role in the development of depressed mood (Beck, 1967). In addition, biased or distorted information processing of emotional information contributes to the systematic sampling of negative aspects of depressed individuals' experiences which serve to maintain the depressed mood (Clark, Beck, & Alford, 1999).

However, depression and anxiety have both distinctive and overlapping features. For example, all levels of cognition (i.e. negative self-schemata, cognitive processing biases/distortions, and cognitive content) derived from the cognitive model have been found in anxious as well as depressive individuals (Epkins, 2000). In Beck's cognitive content-specificity hypothesis, he proposed that depression can be distinguished from anxiety by the form and content of maladaptive cognitions, beliefs and processes associated with these disorders (Beck, 1967, 1976). For example, automatic thoughts and images in depression focus on the past, are absolute, and loss oriented; whereas, in anxiety, automatic cognitions involve future-oriented danger or harm themes (Beck, Brown, Steer, Eidelson, & Riskind, 1987). The extensive comorbidity and overlapping features found in anxiety and depression symptoms and disorders has been explained by using the concept of negative affectivity (Watson & Clark, 1984), together with the idea

that there are specific constructs of low positive affectivity for depression and physiological hyper-arousal for anxiety (Clark & Watson, 1991). According to these explanations, depression is characterised by thoughts of loss and hopelessness, high negative affect and low positive affect; whereas anxiety is characterised by thoughts concerning anticipated threat or harm and high negative affect.

One way in which the differentiation of anxiety and depression has been examined is by investigating individuals' recall of past experiences and their expectations of future experiences. MacLeod, Tata, Kentish and Jacobsen (1997) used an adapted verbal fluency paradigm with depressed and anxious adults in which participants were asked to think of positive and negative events that had happened or that were going to happen in order to examine recall and anticipation of positive and negative experiences. Anxiety was associated with increased numbers of negative memories and negative future expectations. Whereas depression was associated with decreased numbers of positive memories and expectations (MacLeod et al., 1997). Together with a range of other studies, this suggests that the depressed person's outlook may actually represent an absence of the self-enhancing positive or optimistic biases that are typically exhibited by non-depressed adults (e.g. Pyszczynski, Holt, & Greenberg, 1987), adolescents (e.g. Malmberg & Norrgård, 1999), and children (e.g. Fischer & Leitenberg, 1986). A reduction in positive cognitions in depression is important because a reduced ability to imagine positive future events or experiences has been associated with hopelessness in depression and parasuicidal behaviour in

adults (Hunter & O'Connor, 2003; Lavender & Watkins, 2004; MacLeod, Pankhania, Lee & Mitchell, 1997; MacLeod, Rose & Williams, 1993; MacLeod, Tata, Tyrer, Schmidt, Davidson, & Thompson, 2005).

In children and adolescents there is evidence that greater levels of depression and anxiety are associated with negative automatic thoughts, dysfunctional attitudes, and a helpless attributional style (e.g. Garber, Weiss & Shanley, 1993), negative interpretations for ambiguous social scenarios (e.g. Dineen & Hadwin, 2004), increased probability estimates for negative events (e.g. Dalgleish et al., 1998; Dalgleish, Taghavi, Neshat-Doost, Moradi, Yule & Canterbury, 1997), and cognitive-affective specificity (e.g. Schniering & Rapee, 2004). However, these studies have generally failed to examine the role of positive thinking in depressed and anxious children and adolescents. One study, which did not explicitly set out to study positive cognitions, discovered inadvertently that the *valence* of depressive cognitions played an important role in distinguishing the anxious group from the depressed and mixed groups (Laurent & Stark, 1993). One of the four self-report cognitive measures used (the Cognitive Triad Inventory for Children; CTIC) contained equal numbers of positively and negatively worded items. The depressed youngsters endorsed more depressive cognitions and fewer positive cognitions related to the self, world and future as measured by the CTIC compared to anxious and control groups. Whereas, no differences were found between the anxious and depressed groups concerning negative cognitions measured by the CTIC.

Negative *and* positive cognitive biases in memory have been examined in a body of experimental information processing research with depressed children and adolescents. These studies typically use a self-referent encoding task (SRET) during which participants encode positive and negative trait adjectives or stories containing positive and negative information in a self-referent manner (i.e. participants are asked whether the word is self-descriptive or they are asked to imagine that they are the main character in the stories presented). Afterwards, participants are asked to intentionally or incidentally recall the adjectives/information. The conceptual basis of such tasks is that when an individual is depressed, schema activation is assumed to facilitate storage and enhance the accessibility of schema-related material, thus increasing the likelihood of its recall. A robust finding is that control participants show a memory bias for positive information. Sub-clinically and clinically depressed children and adolescents have produced inconsistent findings. Some studies have found evidence of a memory bias for negative information in depressed children and adolescents (Bishop, Dalgleish, & Yule, 2004; Neshat-Doost, Taghavi, Moradi, Yule & Dalgleish, 1998; Zupan, Hammen, & Jaenicke, 1987), whereas others demonstrate the absence of a memory bias for positive information but no bias for negative information (Cole & Jordan, 1995; Hammen & Zupan, 1984; Prieto, Cole, & Tageson, 1992). Studies with anxious participants demonstrate evidence of a weak memory bias in children and adolescents with PTSD in favour of negative information (Moradi, Taghavi, Neshat-Doost, Yule, & Dalgleish, 2000) but there is no evidence to support a memory bias for threat in generally anxious children (Dalgleish, Taghavi, Neshat-Doost,

Moradi, Canterbury, & Yule, 2003). However, the extant studies with anxious participants are limited because they do not report the recall of positive information and only focus on recall of negative information (Dalgleish et al., 2003; Moradi et al., 2000) making it impossible to assume that the recall of positive information is unaffected in anxious children and adolescents.

More recent research has started considering the role of positive cognitions in differentiating depressed and anxious children and adolescents, but inconsistent results have been found. For example, Marien and Bell (2004) found that more depressive symptoms were associated with a deficiency in positive thoughts, whereas anxiety was either unrelated or positively related to positive thoughts. On the other hand, Miles, MacLeod and Pote (2004) found, contrary to their predictions, that adolescents with higher levels of depression did not generate fewer positive memories or positive future expectations (though adolescents with higher levels of depression and higher levels of anxiety did report significantly more negative memories and negative expectations relative to controls). Correlations across the sample showed that positive and negative affect correlated with positive and negative cognitions respectively. Therefore, it was surprising that dysphoric adolescents did not generate fewer positive cognitions because lower levels of positive affect were found in depressed youngsters when compared to controls even after covarying out any overlapping anxiety effects.

One possible explanation for this puzzling finding is that the mildly depressed youngsters in the study were not as disturbed as adolescents in clinical

settings. Alternatively, depressed adolescents might not exhibit the same pattern of positive cognitions as depressed adults. Given that a reduction in positive thinking has been associated with hopelessness in adults, the failure to observe a reduction of positive thinking in adolescents may relate to youngsters failing to experience the same degree of hopelessness (Miles et al., 2004). Unfortunately, neither Marien and Bell (2004) nor Miles et al. (2004) measured hopelessness. However, clinically depressed children do have higher levels of hopelessness than non-depressed youngsters in some studies (Asarnow & Bates, 1988; McCauley et al., 1988) and both hopelessness and a diagnosis of depression have been associated with parasuicidal behaviour (Asarnow & Guthrie, 1989).

The purpose of the present study was to investigate the recall of positive and negative past experiences and the anticipation of positive and negative future experiences in clinically depressed young people and to explore the relationship between recall and anticipation of events and hopelessness.

The aim was to build on Miles et al.'s (2004) study to investigate whether the typical cognitive profile demonstrated by depressed adults is evident at an earlier age in clinically depressed adolescents (as opposed to a symptomatic community sample). The study was originally designed to compare a clinical sample of depressed adolescents who did not have a comorbid anxiety disorder with a non-clinical sample of adolescents. However, given the available time and resources it was impossible to recruit such a clinical group because all the clinical participants met diagnostic criteria for anxiety disorders as well as depressive disorders. Furthermore, a number of non-

clinical adolescents exhibited a range of clinically sub-threshold anxiety symptoms, thus presenting a natural opportunity to form a second non-clinical anxious group. This led to the formation of three groups, a clinical group with mixed depression and anxiety disorders, a non-clinical group with sub-threshold anxiety disorders, and a non-clinical group.

Adolescence is associated with intellectual developments, including cognitive, memory and information processing changes. Piaget (1964) suggested that from the age of approximately 11 years old cognition passes into the formal operational stage. This stage of cognitive development is associated with the ability to reason hypothetically and less concretely. Therefore, by adolescence, individuals are able to think about absent objects, the future, and about possibilities and hypotheses that are not concrete or real. There is also a shift in cognitive development whereby the adolescent begins to understand the significance of past events and experiences. This level of cognitive development reflects more adult patterns of thinking. It was therefore anticipated that the clinical sample of adolescents would demonstrate similar results to the depressed adults in MacLeod et al.'s (1997) study, and that the non-clinical sub-threshold adolescents would demonstrate results similar to the anxious adolescents in Miles et al.'s (2004) study. There were three specific hypotheses. First, that clinical adolescents would generate fewer positive memories and fewer positive expectations of future experiences compared to non-clinical adolescents. Second, that clinical adolescents would generate more negative memories and more negative expectations of future experiences compared to non-clinical

adolescents. Third, that non-clinical sub-threshold adolescents would generate more negative responses overall (though the difference may be more marked for future expectations than memories) compared to non-clinical adolescents. There was an additional fourth hypothesis, which was exploratory, but was based on the findings of MacLeod et al. (2005) who found that hopelessness correlated more strongly with a lack of positive expectations about the future than with the number of negative expectations about the future. We predicted that positive future expectations would be negatively correlated with levels of self-reported hopelessness.

METHOD

Participants

The study received ethical approval from the University of Southampton, School of Psychology Ethics Committee (see Appendix 4) and NHS Southampton and South West Hampshire Research Ethics Committee (A) (see Appendix 5). Forty non-clinical participants were drawn from a local state secondary school ($n = 25$), and college for further education, Portsmouth, UK ($n = 15$). Nine clinical participants were recruited through four Hampshire adolescent mental health services. Demographic data were collected from participants (age, gender, ethnicity, parental occupation in order to classify adolescents' socio-economic position according to the National Statistics Socio-Economic Classification (Office for National Statistics, 2005)). All participants were screened using the voice Diagnostic Interview Schedule for Children (voice DISC; Shaffer, Fisher, Lucas, Dulcan, & Schwab-Stone, 2000) for anxiety disorders or depressive disorders

according to the Diagnostic and Statistical Manual of Mental Disorders, fourth edition (DSM-IV; American Psychiatric Association, 1994)¹.

The school sample comprised 15 girls (mean age 14.5 years (SD = 1.1), all white British), and 10 boys (mean age 14.7 years (SD = 0.8), all white British). Table 1 illustrates the stratification of the school sample in terms of DSM-IV criteria.

Table 1. Stratification of school sample as a function of DSM-IV criteria.

DSM-IV criteria	Number of participants
No depression or anxiety criteria met	7
Sub-threshold SocP	5
Sub-threshold OCD	2
Sub-threshold SocP and PD	1
Sub-threshold SocP and Ag	1
Sub-threshold Ag and OCD	1
Sub-threshold SocP, PD and MDD	1
Full criteria SpP	3
Full criteria OCD / sub-threshold SocP and SpP	1
Full criteria Ag / sub-threshold GAD, PD and OCD	1
Full criteria SpP / sub-threshold SocP, SAD, and MDD	1
Full criteria SpP and OCD / sub-threshold SocP and Ag	1

Note. SocP = social phobia; OCD = obsessive compulsive disorder; PD = panic disorder; Ag = agoraphobia; SpP = specific phobia; GAD = generalised anxiety disorder; SAD = separation anxiety disorder; and MDD = major depressive disorder.

¹ The post traumatic stress disorder module of the voice DISC was not administered to the non-clinical school and college participants, instead the following screening question was asked before the voice DISC started, "Have you ever experienced, witnessed or been confronted with an event that involved actual or threatened death or serious injury to you or someone else?" If the participant answered affirmatively, it was followed up with probes regarding the presence of symptoms. No non-clinical participants were currently symptomatic for PTSD.

The college sample consisted of 12 females (mean age 17.6 years (SD = 0.7), 10 white British, 1 Indian Asian British, 1 black African) and 3 males (mean age 17.6 years (SD = 1.0), all white British). Table 2 illustrates the stratification of the college sample in terms of DSM-IV criteria.

Table 2. Stratification of college sample as a function of DSM-IV criteria.

DSM-IV criteria	Number of participants
No depression or anxiety criteria met	6
Sub-threshold SocP	2
Sub-threshold OCD	2
Sub-threshold SpP	1
Sub-threshold SocP and SpP	2
Sub-threshold SocP and PD	1
Sub-threshold SpP, PD and SAD	1

Note. SocP = social phobia; OCD = obsessive compulsive disorder; PD = panic disorder; SpP = specific phobia; SAD = separation anxiety disorder.

Given the unexpectedly high levels of psychopathology in the non-clinical group, participants were subdivided into two discrete non-clinical groups: 13 non-clinical participants (6 females, 7 males; mean age 15.6 years (SD = 1.6)) who did not meet full or sub-threshold criteria for either anxiety or depression, and 13 non-clinical sub-threshold participants (11 females, 2 males; mean age 16.5 years (SD=1.3)) who did not meet full criteria (i.e. were sub-threshold) for one or more of the following anxiety disorders: social phobia, separation anxiety disorder, panic disorder, and agoraphobia. In order to create a relatively homogeneous non-clinical anxious group participants were excluded from the latter group if they met full or sub-threshold criteria for specific phobia alone (n=4), or if they met full or sub-threshold criteria for OCD (n=8). It was considered that both these disorders

have more circumscribed symptom profiles and would increase the heterogeneity of the sample. Participants were also excluded if they exhibited symptoms consistent with major depression/dysthymic disorder (n=2). No information was gathered with respect to any prescribed medications used by the non-clinical participants.

Eleven clinical participants were recruited from four Hampshire adolescent mental health services. Exclusion criteria were young people who were experiencing psychosis or an eating disorder. Two participants were excluded from the original clinical group because one did not meet full or sub-threshold criteria for major depression/dysthymic disorder and the other participant did not engage with the memory and future thinking task. Nine clinical participants (7 females, 2 males; mean age 15.9 years (SD=1.6); all white British) met full or sub-threshold criteria for either major depression/dysthymic disorder and at least one anxiety disorder (also including post traumatic stress disorder). Table 3 illustrates the stratification of the clinical sample in terms of DSM-IV criteria.

The clinical group, therefore, represent a mixed anxious/depressed group. There were no participants who met criteria for 'pure' depression without any comorbid diagnoses. Six (66%) of the nine clinical participants were using prescribed antidepressant medication. Three of these six adolescents were using multiple prescribed medications.

Table 3. Stratification of clinical sample as a function of DSM-IV criteria.

DSM-IV criteria	Number of participants
Sub-threshold MDD, SocP, SAD, OCD, GAD, Ag, and SpP	1
Sub-threshold MDD, SpP, SocP, SAD, OCD, Ag, PTSD, and GAD	1
Sub-threshold MDD, SpP, SocP, SAD, OCD, Ag, PD, PTSD, and GAD	1
Full criteria OCD / sub-threshold MDD, SpP, SP, SAD, PD, and PTSD	1
Full criteria DD / sub-threshold MDD, SpP, OCD, and PD	1
full criteria MDD and SpP / sub-threshold SocP and OCD	1
full criteria SocP and SpP / sub-threshold for MDD, PD, Ag, and GAD	1
full criteria MDD, PD, and SpP / sub-threshold SocP, SAD, Ag, and OCD	1
full criteria DD, PD, OCD, and GAD / sub-threshold SocP	1

Note. SocP = social phobia; OCD = obsessive compulsive disorder; PD = panic disorder;

Ag = agoraphobia; SpP = specific phobia; GAD = generalised anxiety disorder; SAD = separation anxiety disorder; PTSD = post traumatic stress disorder; MDD = major depressive disorder; and DD = dysthymic disorder.

Materials

Voice DISC. The National Institute of Mental Health's computerised Diagnostic Interview Schedule for Children (DISC; Shaffer et al., 2000) is a highly structured diagnostic assessment instrument designed to gather symptom presence for 34 child and adolescent psychiatric disorders. It is currently one of the most widely used child and adolescent structured interviews (Shaffer et al., 2000). The DISC was originally designed to be administered by trained, lay interviewers to aid in gathering diagnostic information for large-scale epidemiological studies. However, it has been used in many clinical research studies (Lewczyk, Garland, Hurlburt, Gearity, & Hough, 2003; Shaffer et al., 2000). The current versions of the DISC are comprised of questions based on the symptom and criteria variables as defined in the DSM-IV (American Psychiatric Association, 1994). The Voice

DISC is a self-administered audio version, in which the computer presents the questions audibly via speakers and the young person inputs his or her response. The interview is organised into six diagnostic sections assessing symptom presence within the last year of: (i) anxiety disorders; (ii) mood disorders; (iii) disruptive disorders; (iv) substance-use disorders; (v) schizophrenia; and (vi) miscellaneous disorders (eating, elimination etc.). Each diagnosis is “self-contained”, so that information from other diagnostic modules is not necessary in order to assign a diagnosis. In the current study, nine diagnoses were assessed in the non-clinical sample: major depressive disorder, dysthymic disorder, social phobia, separation anxiety disorder, specific phobia, panic disorder, agoraphobia, generalised anxiety disorder, and obsessive compulsive disorder, and ten diagnoses in the clinical sample (the aforementioned diagnoses in addition to post traumatic stress disorder). Validity testing of the DISC-IV is relatively sparse (Jewell, Handwerk, Almquist, & Lucas, 2003; Lewczyk et al., 2003). Fisher et al. (1993) tested the validity of an earlier version of the DISC and reported sensitivity levels ranging from 0.73 to 1.0 for certain uncommon psychiatric disorders (i.e. major depressive, obsessive-compulsive, psychosis, tic and substance use disorders). The Voice DISC was used in the present study in order to circumvent prohibitive training requirements of other diagnostic instruments.

Children's Depression Inventory Short Form. The Children's Depression Inventory Short Form (CDI-S; Kovacs, 1992), is a 10-item self-report scale developed as a screening instrument for symptoms of depression in children and adolescents aged 7 to 17 years old. The child is invited to choose from

three statements for each item (scored 0 [absence of symptom], 1 [mild symptom], or 2 [definite symptom]) and to indicate the option that best describes how he or she has felt in the previous two weeks. The CDI-S contains one item on each of the following: sadness, pessimism, self-deprecation, self-hate, crying spells, irritability, negative body image, loneliness, lack of friends, and feeling unloved. Children's scores on the CDI-S are converted to a T score, a standard score with a mean of 50 and SD of 10. The CDI-S is a shortened version of the 27-item Children's Depression Inventory (CDI; Kovacs, 1981). It correlates highly with the full questionnaire ($r = 0.89$) (Kovacs, 1992) and has a good internal consistency coefficient ($\alpha = 0.80$).

Revised Children's Manifest Anxiety Scale. The Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds & Richmond, 1985) is a yes/no self-report scale containing 37-items. The scale is designed to assess trait anxiety in children and adolescents aged between 6 and 19 years. The child reads each item and circles yes or no to indicate whether the statement is true of the way they think or feel. Twenty eight items measure anxiety, yielding a total score of 0 to 28, and the remaining nine form a lie/social desirability scale. The anxiety scale can be divided into three sub-scales: physiological anxiety (10 items), worry/over-sensitivity (11 items), and social concerns (7 items). Children's total raw score on the RCMAS is converted to a standard score with a mean of 50 and a SD of 10. Sub-scale scores are also converted to scaled scores with a mean of 10 and a SD of 3. Children scoring within one SD of the total mean are considered to fall within a normal

range. Children scoring over 60 are considered to warrant further investigation. Internal consistency for the total scale is good (coefficient $\alpha = 0.88$ for children aged 9 to 11 years, and 0.86 for adolescents aged 12 to 17 years; Lonigan, Hooe, David, & Histner, 1999). Test-retest reliability is reported at 0.68 (Reynolds & Richmond, 1985). Significant concurrent validity has been found between the RCMAS and the A-trait scale of the State Trait Anxiety Inventory for Children (STAIC) (Reynolds & Richmond, 1978) indicating that the instrument is a useful measure of chronic anxiety.

Beck Hopelessness Scale. The Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, & Trexler, 1974) is a 20-item, true-false measure that assesses the extent of negative expectancies about the immediate and long-term future. Of the 20 statements, nine are keyed false, and 11 are keyed true to indicate pessimism about the future. Each of the statements is scored 1 or 0 and when scores are summed a total score can range from 0 to 20 with higher scores indicating greater hopelessness. Scores between 0 to 3 are within the minimal range, 4 to 8 are mild, 9 to 14 are moderate, and greater than 14 are severe. Beck originally developed this scale in order to measure suicidal behaviour; BHS scores of 9 or more were predictive of eventual suicide in depressed suicidal ideators followed-up from hospital for 5 to 10 years (Beck, Steer, Kovacs, & Garrison, 1985). While the BHS is most appropriate for adults over the age of 17, it has been employed with adolescents as young as 13 years of age (Durham, 1982; Greene, 1981). The scale has adequate internal consistency with younger populations (coefficient $\alpha = 0.65$) (Durham, 1982). The scale has good reliability and

validity for adult populations (Beck & Steer, 1988). The rationale for using the BHS in the present study was the lack of psychometric data for the Children's Hopelessness Scale for Children for children over 13 years.

Hopelessness Scale for Children. The Hopelessness Scale for Children (HSC; Kazdin, Rodger, & Colbus, 1986) is a 17-item, true-false measure adapted for use with children from the original 20-item Beck Hopelessness Scale (Beck et al., 1974). A higher total score (range 0 to 17) indicates greater hopelessness or more negative expectancies. The HSC has a good internal consistency coefficient ($\alpha = 0.97$) and correlates positively with depression and suicidal ideation and negatively with self-esteem, thus supporting its construct validity in an inpatient sample children aged 6 to 13 years (Kazdin, French, Unis, Esveldt-Dawson, & Sherick, 1983).

Memory/Future thinking tasks. The memory/future thinking tasks assesses an individual's memory of past experiences and expected experiences for the future. The tasks were developed by MacLeod et al. (1997) for use with a clinical sample of depressed and anxious adults.

For the memory task, participants think of past experiences occurring over three different time periods: the past week, the past year, and the past 5 to 10 years. Although the time periods were not expected to show differential effects, MacLeod et al. discovered that participants found it easier to generate items when particular time cues were used. The time cues were presented verbally, one at a time and in the order described above. There were two conditions: one where participants were asked to think of positive

past experiences, and the other where they were asked to think of negative past experiences. In all three time periods and in both conditions, participants were given one minute to generate as many responses as possible and to say these aloud.

The future thinking task is similar to the memory task. However, instead of thinking about the past, participants are given the following time periods: the next week, the next year, and the next 5-to-10 years (see Appendix 6).

The total score is the number of events generated for each of the twelve conditions. A set of formalised scoring criteria was used based on Miles et al's. (2004) study to facilitate comparability between the studies. Each response must be distinct from the others to be counted. If a category label is provided (e.g. I have been to hospital lots of times) and then examples of this category are also given (e.g. I broke my arm, I broke my leg, I had stitches in my knee) *only* the examples count (i.e. three) and not the category. If only a category is given without examples, then the category counts once. If a participant provide an overall category but not specific examples (e.g. I have enjoyed Christmases in the last ten years) then it counts only once regardless of the time frame. If a participant is specific about the number of times something positive/negative has occurred (e.g. I have tried to commit suicide three times), the specified number is taken into account and counted (i.e. three) (see Appendix 7 for scoring criteria and a worked example). In order to examine the reliability of scoring of data, an independent rater agreed to blindly-rate the response sheets from the three

groups of participants (non-clinical, non-clinical sub-threshold, and clinical anxious/depressed) which constituted 71% of the data from all participants. Inter-rater reliability was examined using Cohen's Kappa, correcting for chance agreement. The level of inter-rater reliability achieved was "excellent" (Robson, 1993) ($K = .849, p < .001$).

Control measures

Verbal fluency task. The verbal fluency task (FAS; Lezak, 1976) is a standard control task that provides a general measure of verbal fluency. Participants are asked to say as many words as possible beginning with each of three letters (F, A, S) excluding proper nouns, the same word with a different suffix, and repetitions. The score is the sum of all acceptable words produced within the three one-minute trials. The verbal fluency task was included to measure any confounding effects of verbal fluency following MacLeod et al. (1997) and Miles et al. (2004).

Digit span. The digit span (DS) task is a core working memory subtest of the fourth UK Edition of the Wechsler Intelligence Scale for Children (WISC-IV; Wechsler, 2003). It is composed of two parts: digit span forward and digit span backward. Digit span is a measure of auditory short term memory, sequencing skills, attention and concentration (Wechsler, 2003). Each item of the digit span forward and backward is made up of two trials with the same span length. There are eight items in digit span forward and eight items in digit span backward. The maximum raw score is 32. Raw scores are converted into age-corrected scaled scores with a mean of 10 and a standard

deviation of three. Digit span was included as a further control task to examine any confounding effects of differences in working memory between the groups.

Procedure

Recruitment procedure. The researcher presented the research study to senior staff members in each educational establishment and mental health service in order to secure assistance from staff in briefing prospective participants about the study and to give out recruitment packs (as stipulated by the NHS research ethics committee). Non-clinical prospective participants (aged 12-16) were briefed during English classes (year 8, 9, 10, and 11); and the non-clinical participants (aged 16-18) were briefed during AS and A'level psychology and biology lectures, respectively. The clinical participants were briefed and given recruitment packs by a clinical practitioner. The recruitment pack contained a letter, an information sheet and an expression of interest form (see Appendices 8-10). Once a young person expressed an interest in participating by returning the form a meeting was arranged so that the researcher could introduce herself, answer any questions and give a consent form to the adolescent (see Appendix 11) and to his or her parent (via the young person) if the adolescent was younger than 16 years old, together with a letter and information sheet (see Appendices 12-14). Given the recruitment procedures employed it is possible that there was an inherent recruitment bias in the samples of adolescents who subsequently consented to take part in the study. This might help to explain the relatively high numbers of non-clinical adolescents meeting sub-threshold criteria. Indeed,

these young people might have been more motivated to take part in psychological research. However, data regarding adolescents who did not participate are not available due to consent issues pre-participation and because the researcher was not permitted to approach adolescents until interest forms were returned.

Data collection procedure. On a subsequent occasion, consenting participants were seen individually in a private room at the community clinics and educational establishments. Participants first completed the Voice DISC and any emergent risk issues identified through the DISC concerning suicidal ideation, attempts and plans were addressed with the young person and shared with a clinician/head teacher, as necessary. In the absence of immediate risk concerns, the young person completed the control tasks (F, A, S, and digit span forward and backward). They were then presented with the personal-future task and the memory task. The order of presentation of the memory and future thinking task (positive and negative conditions) was counterbalanced across participants in order to control for practice or fatigue effects. Thus each participant received both past and future thinking orientations with both positive and negative conditions. The following instructions were given:

“I am going to ask you to tell me about some things that have happened to you or things that you think might happen. These can be unimportant things or important things. They are things that have happened in the past, and things that you know are going to happen in the future, or things that could reasonably happen in the future. I will ask you to think of things for three different time periods. I want you to

try and think of as many things as possible for each time period, and I'd like you to keep trying until I tell you to stop. Do you understand?"

Finally, participants completed the CDI, the HSC, the RCMAS and the BHS. Following data collection, participants were given a verbal debriefing and a written debriefing sheet (see Appendix 15). Non-clinical participants received an information sheet with contact numbers for sources of support if they considered that they were experiencing problems (see Appendix 16). All participants were thanked for taking part and clinical participants received an honorarium in the form of a ten pound voucher².

Data analytic strategy

Initially the research strategy was to recruit 15 to 20 adolescents (based on a power analysis using data from the MacLeod et al. (1997) study of clinical participants) who met criteria for a diagnosis of pure depression. As noted earlier, recruitment difficulties soon emerged and it was clear that recruiting participants meeting a singular diagnosis of major depression was impossible given the timescale of the study. Thus, the research strategy changed and clinical participants were considered for the study if they met full or sub-threshold criteria for major depressive/dysthymic disorder. A larger sample of control participants were recruited in anticipation of prohibitive recruitment difficulties. These issues impacted on the data analytic strategy and consequently the research design for the present study is comprised of two elements:

² The honorarium was ultimately approved by the ethics committees after data collection from non-clinical participants was complete. Pragmatic and time constraints did not permit the researcher to go back and re-contact the 40 non-clinical participants who had already been tested.

Group design. Given the high level of psychopathology in the non-clinical participants and comorbidity in the clinical participants a group design was used with sub-samples of the data. Comparisons between non-clinical, non-clinical sub-threshold and clinical groups are made using a mixed factorial design.

Correlational design. The non-clinical participants form a group of young people not currently accessing mental health services of any kind (N=40). The group, nevertheless, exhibited an unexpected range in severity of psychopathology and therefore presented a natural opportunity to examine relationships between primary variables using a correlational method.

RESULTS

Descriptive statistics of participants recruited

Mean age, gender, socio-economic status, verbal fluency, and digit span of the three groups are shown in Table 4. Simple factorial ANOVA was used to examine group differences in age, verbal fluency, and working memory.

There were no significant differences between the three groups in age ($F(2,32) = 1.17$, NS), verbal fluency ($F(2,32) = 0.78$, NS), or digit span ($F(2,32) = 0.74$, NS). This absence of a difference in either verbal fluency or digit span indicates that any observed differences on the memory/future thinking task could not simply be accounted for by the clinical participants being less cognitively fluent or less able to cognitively process information, for example, as a result of taking medication. Kruskal-Wallis analysis revealed no differences between the groups in socio-economic status ($H(2) =$

0.021, NS). In addition, sex ratio did not differ between groups ($\chi^2 (2) = 4.94$, NS), however, this might reflect the low number of participants entered into the analysis rather than a real absence of a potentially meaningful difference.

Table 4. Participant characteristics.

	Non-clinical group (n = 13) <i>M (SD)</i>	Non-clinical sub- threshold group (n = 13) <i>M (SD)</i>	Clinical group (n = 9) <i>M (SD)</i>
Age	15.6 (1.6)	16.5 (1.3)	15.9 (1.6)
Female	6 (46.2%)	11 (84.6%)	7 (77.8%)
Male	7 (53.8%)	2 (15.4%)	2 (22.2%)
Socio-economic status ^a (parental occupation score)	4 (2-9)	4 (2-9)	5 (1-8)
FAS	30.8 (8.6)	26.6 (12.0)	26.0 (9.3)
DS	9.8 (3.3)	8.6 (2.6)	8.6 (2.8)

Note. ^a Medians (range) are reported for socio-economic status. The National Statistics Socio-Economic Classification Scale (Office for National Statistics, 2005) was used to determine occupation score. This scale (adjusted for the present analysis) ranges from 1 to 9, with lower numbers representing higher managerial occupations, and higher values representing routine occupations and the long-term unemployed. A median score of 4 indicates that most mothers/fathers of adolescents were employed in intermediate occupations; a median score of 5 were employers in small organisations or own account workers. FAS = verbal fluency control task; DS = digit span working memory control task.

Self-report measures

Table 5 shows median scores for each of the groups on the self-report measures of anxiety, depression and hopelessness. Kolmogorov-Smirnov tests indicated that some group data had skewed distributions (i.e. RCMAS, CDI-S, and HSC for the non-clinical group). Levene's tests also revealed

some heterogeneity of variance (i.e. HSC, BHS). Therefore, it was considered more circumspect to analyse these data with non-parametric tests. There were significant differences on all variables. The non-clinical sub-threshold group had higher anxiety, depression, and hopelessness (measured by the BHS) scores than the non-clinical group, but these groups did not differ on hopelessness (measured by the HSC). The clinical group had higher anxiety, depression, and hopelessness scores when compared to the non-clinical sub-threshold group.

Table 5. Medians, (range) and significance of differences for each group on each of the self-report measures.

	Non-clinical group (n = 13)	Non-clinical sub- threshold group (n = 13)	Clinical group (n = 9)	H(2)	p <
RCMAS	37 _a (27-52)	45 _b (32-62)	68 _c (60-72)	23.28	.001
CDI-S	41 _a (39-63)	45 _b (39-59)	73 _c (66-90)	22.63	.001
HSC	1 _a (0-4)	2 _a (0-6)	7 _c (2-16)	15.75	.001
BHS	1 _a (0-3)	3 _b (1-4)	10 _c (4-20)	24.19	.001

Note. RCMAS = Revised Manifest Anxiety Scale; CDI-S = Children's Depression Inventory – short form; HSC = Hopelessness Scale for Children; BHS = Beck Hopelessness Scale.

Means sharing a subscript on a variable do not differ from each other at the $p < .025$ level using a Bonferroni adjusted alpha per test ($.05/2$), Mann-Whitney tests (one-tailed).

Memories and expectancies

Table 6 shows the means and standard deviations for each group on number of positive and negative memories produced and number of positive and negative expectancies generated.

Table 6. Means and (standard deviations) of number of responses (memories and expectations) divided by group, orientation and valence.

	Memories		Expectations	
	Positive	Negative	Positive	Negative
Non-clinical (n=13)	6.21 (2.43)	3.74 (1.89)	7.13 (2.67)	4.82 (2.49)
Non-clinical sub-threshold (n=13)	6.67 (2.60)	4.31 (1.63)	6.62 (2.29)	5.05 (1.61)
Clinical (n=9)	3.96 (2.43)	5.52 (2.88)	5.26 (1.77)	5.22 (2.13)

In order to compare the groups on memories and expectations, the data were analysed using a group (non-clinical, non-clinical sub-threshold, clinical) x valence (positive, negative) x orientation (past, future) mixed ANOVA. There was a significant main effect of valence, $F(2,32) = 19.14, p < .001$, and a significant valence x group interaction, $F(2,32) = 11.56, p < .001$. There was also a main effect of orientation $F(2,32) = 10.13, p < .01$, indicating that overall, more future expectations ($M = 5.73, SD = 2.04$) were generated than memories ($M = 5.10, SD = 1.96$). There was a trend for a three-way interaction between valence, orientation, and group $F(2,32) = 2.88, p = .071$. The two-way interaction between valence and group is illustrated in Figure 1.

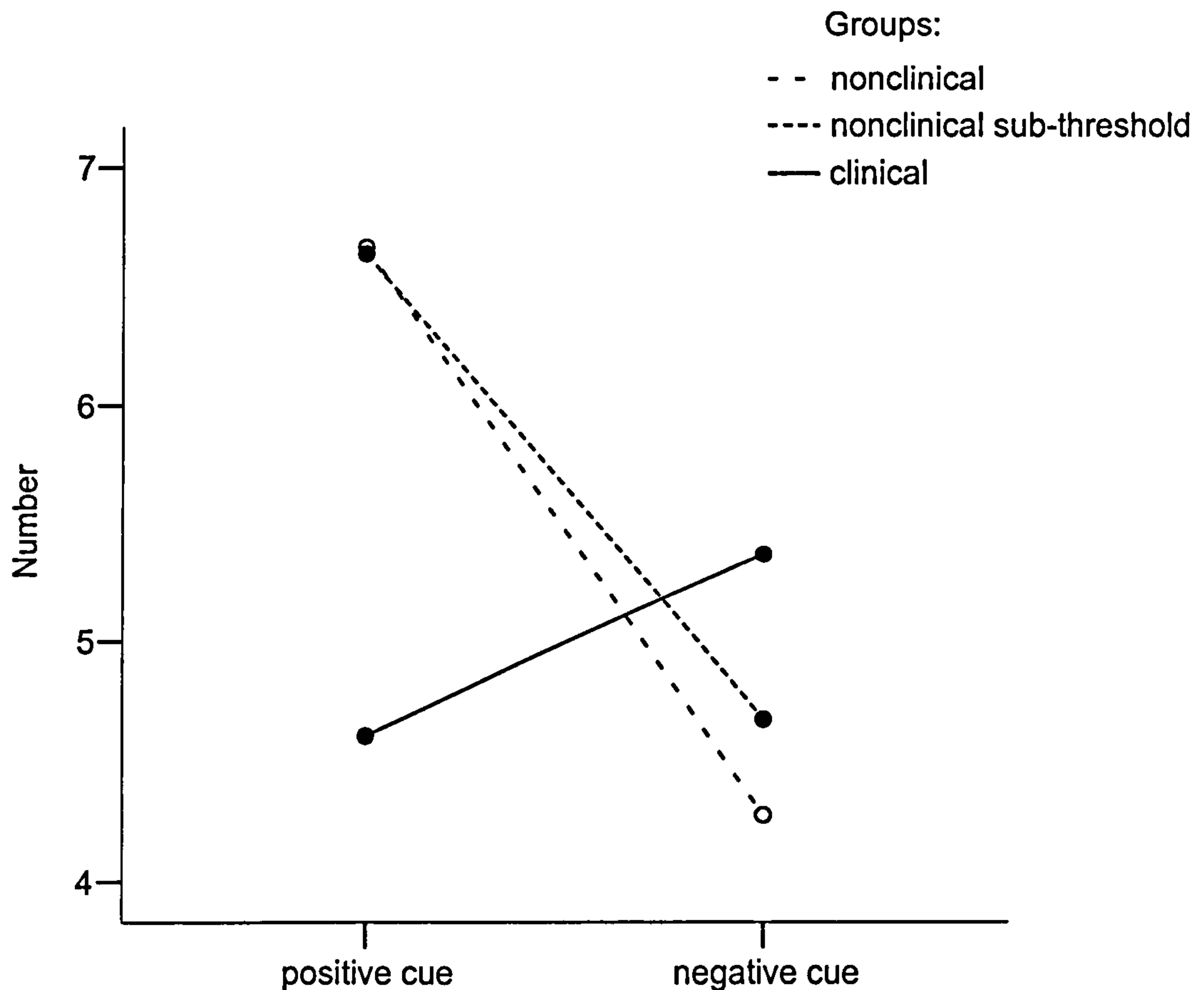


Figure 1. Mean responses (memories and future expectations combined) to positive and negative cues for the three groups.

In order to explore the interaction further, post-hoc independent-samples T-tests were performed on the positive and negative conditions. For the positive condition, both non-clinical groups combined, generated significantly more positive responses than the clinical group, $t(33) = 2.4, p = .022$, ($M_s = 6.7$ and 4.6 respectively). For the negative condition, neither non-clinical group differed from the clinical group (both $t_s < 1.5$).

In order to examine whether the number of responses to positive and negative cues was significantly different *within* each group paired-sample T-tests were performed. Both non-clinical groups generated more positive relative to negative responses (non-clinical: $t(12) = 7.9, p < .001; Ms = 6.7$ and 4.3 ; non-clinical sub-threshold: $t(12) = 5.0, p < .001; Ms = 6.7$ and 4.7), but there was no difference between responses to positive and negative cues in the clinical group, $t(12) = -1.1, p > .05; Ms = 4.6$ and 5.4 .

Time differences in memories and expectancies

The time periods were chosen in the memory/future thinking task in order to facilitate the generation of memories and expectancies. However, MacLeod et al. (1997) found significant differences between groups as a function of the cued time periods. Therefore, any differences between the groups in terms of time periods were also important to explore here. Positive and negative memories and future expectations were examined in two separate group (non-clinical, non-clinical sub-threshold, clinical) x orientation (past, future) x time (week, year, 5-to-10 years) mixed ANOVAs. Table 7 shows the means and standard deviations for each group on number of positive and negative memories and future expectations for the time periods of a week, a year, and 5-to-10 years.

Table 7. Means and standard deviations of number of responses divided by group, orientation, valence, and time.

	Non-clinical (n=13) M (SD)	Non-clinical sub- threshold (n=13) M (SD)	Clinical (n=9) M (SD)
Memories			
<i>Positive</i>			
week	4.85 (2.79)	6.31 (2.90)	4.00 (2.74)
year	6.77 (2.28)	6.31 (2.81)	4.44 (2.60)
5-10 years	7.08 (2.99)	7.54 (3.78)	3.56 (2.65)
<i>Negative</i>			
week	2.69 (1.65)	4.23 (2.68)	4.56 (3.05)
year	3.85 (2.34)	4.69 (2.21)	5.00 (2.74)
5-10 years	4.85 (2.30)	4.46 (2.22)	7.11 (4.73)
Expectancies			
<i>Positive</i>			
week	6.15 (3.29)	5.23 (2.17)	4.67 (1.80)
year	7.08 (2.66)	6.77 (2.49)	5.67 (1.87)
5-10 years	8.08 (2.72)	7.77 (2.42)	5.33 (2.55)
<i>Negative</i>			
week	5.00 (3.29)	4.92 (1.89)	4.56 (1.81)
year	4.08 (2.40)	4.92 (2.18)	5.33 (2.35)
5-10 years	5.31 (2.56)	5.15 (1.57)	5.89 (3.10)

For positive responses, there was a significant main effect of orientation, $F(2,32) = 4.7, p < .05$ indicating that overall, more future expectations ($M = 6.46, SD = 2.38$) were generated than memories ($M = 5.80, SD = 2.67$).

There was also a main effect of time, $F(2,32) = 16.3, p < .001$, and a group x time interaction, $F(4,64) = 3.6, p < .05$. The interaction is illustrated in Figure 2.

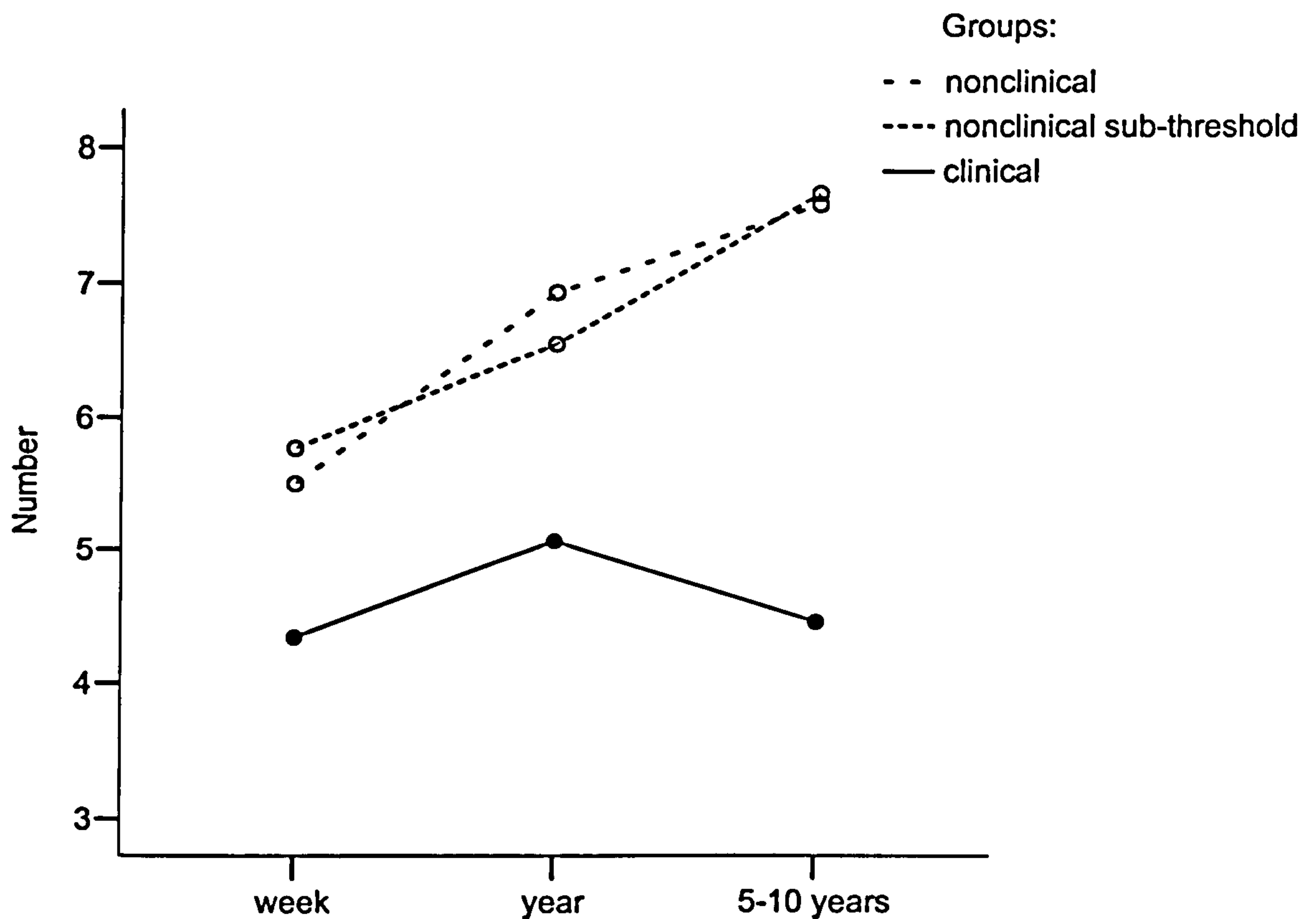


Figure 2. Mean positive responses (memories and future expectations combined) generated for the time period of a week, a year, and 5-10 years for the groups.

In order to explore the interaction further, post-hoc independent-samples T-tests were performed on each of the time periods. For the time period of a week and a year, there were no significant differences (using a Bonferroni adjusted alpha level) in positive responses between the groups ($t_s < 2.5$) (week $M_s = 5.5, 5.8, 4.3$; year $M_s = 6.9, 6.5, 5.1$, for the non-clinical, non-clinical sub-threshold, and clinical groups, respectively). For the time period of 5-to-10 years, the non-clinical groups combined, generated significantly

more positive responses than the clinical group, $t(33) = 3.3, p = .002, (Ms = 7.6$ and $4.4, respectively).$

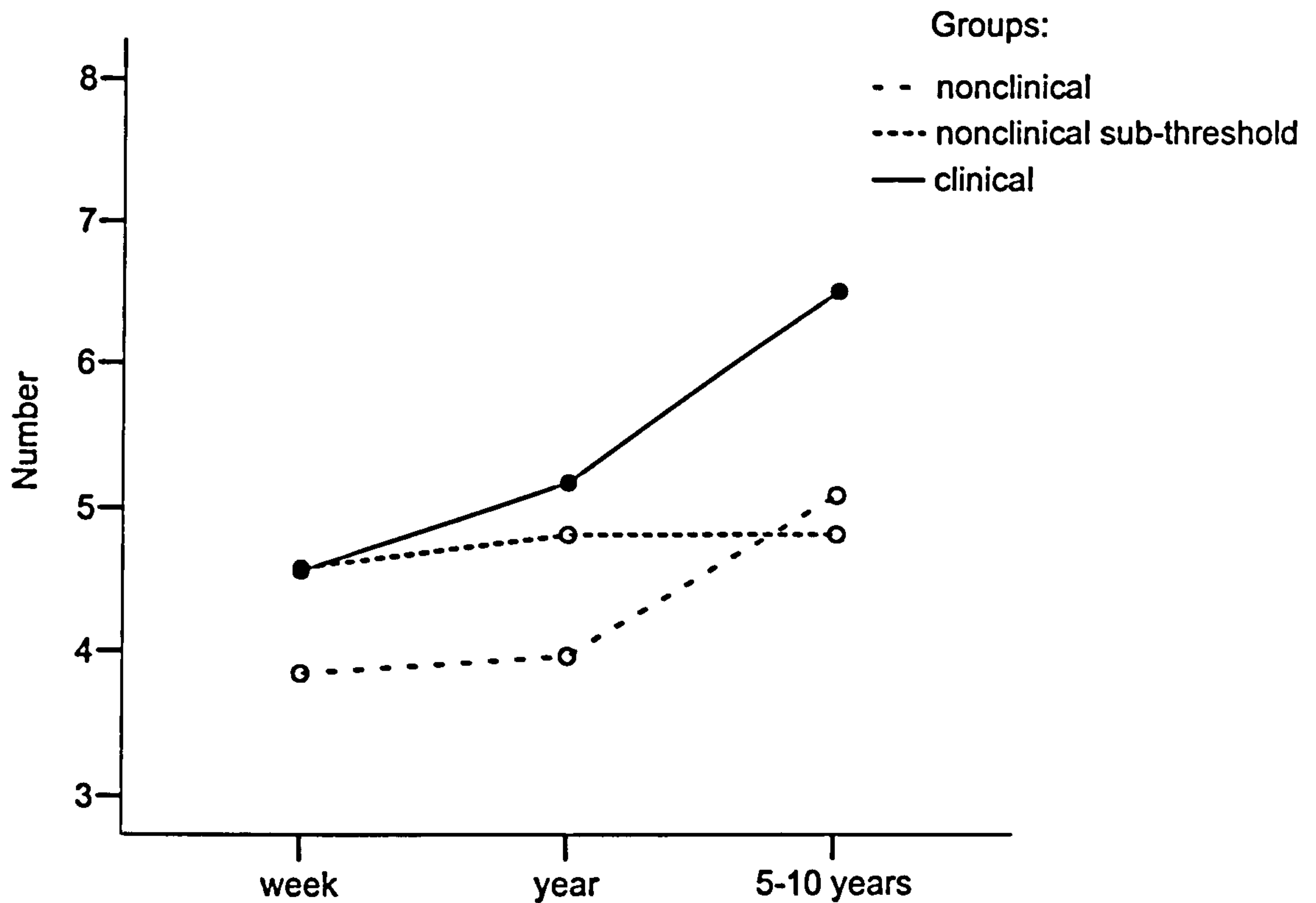


Figure 3. Mean negative responses (memories and future expectations) generated for the time period of a week, a year and 5-10 years for the groups.

For negative responses there was a main effect of time, $F(2,32) = 7.17, p < .01$, indicating that differences in time were consistent across groups.

Pairwise comparisons showed that overall, there were no differences between the number of negative responses generated for a week ($M = 4.30, SD = 2.22$) and a year ($M = 4.59, SD = 1.99$), however, there was a

difference between a year and 5-10 years ($M = 5.34$, $SD = 2.46$), $p < .05$ indicating that more responses were generated for the 5-10 years time cue. There was also a difference in the number of negative responses generated between the time cue of a week and 5-10 years, $p < .01$, again indicating that more responses were generated for the 5-10 years time cue (see Figure 3). There was no main effect of group, and no group x time interaction (both F 's < 1.5).

Correlational analyses

Non-clinical sample

In order to explore the relationships between self-reported anxiety, depression, and hopelessness to positive and negative memories and future expectations in the non-clinical group ($n = 40$), Pearson's correlations were carried out between the self-report measures and number of positive and negative memories and expectancies generated. There was a limited range of scores in the non-clinical group on the hopelessness measures. This, perhaps, is not surprising because they are clinical instruments. Therefore, any significant relationships might best be treated with caution. The correlations are shown in Table 8.

Adolescents with higher self-reported depression severity scores, anxiety severity scores, and hopelessness produced more negative memories.

Table 8. Correlations of CDI-S, RCMAS, HSC and BHS with number of positive and negative memories and expectations for the non-clinical sample (n = 40).

	1	2	3	4	5	6	7
1. Positive memories	–						
2. Negative memories	.67**	–					
3. Positive expectations	.81**	.58**	–				
4. Negative expectations	.76**	.66**	.73**	–			
5. CDI-S	.08	.33**	-.06	.15	–		
6. RCMAS	.19	.47**	.06	.30	.60**	–	
7. HSC	.04	.36*	.02	.04	.52**	.32*	–
8. BHS	.15	.36*	-.05	.12	.16	.33*	.26

Note. CDI-S = Children's Depression Inventory; RCMAS = Children's Revised Manifest Anxiety Scale; HSC = Hopelessness Scale for Children; BHS = Beck Hopelessness Scale.

* $p < .05$; ** $p < .01$, one-tailed

Clinical sample

Supplementary *exploratory* nonparametric correlational analyses were conducted with data from the clinical sample (see Table 9). It should be noted that it is not conventional to conduct such analyses with a small sample size. However, the rationale for performing the correlations was to explore whether similar or different patterns of relationships emerged for the clinical sample. Furthermore, such analyses also permitted the examination of associations between primary variables and hopelessness because these relationships could not be confidently examined with data from the non-clinical sample.

Table 9. Correlations of CDI-S, RCMAS, HSC, and BHS with number of positive and negative memories and expectations for the clinical sample (n = 9).

	1	2	3	4	5	6	7
1. Positive memories	—						
2. Negative memories	-.02	—					
3. Positive expectations	.30	.78**	—				
4. Negative expectations	-.01	.78**	.64*	—			
5. CDI-S	-.50	.38	.26	.30	—		
6. RCMAS	.20	.62*	.78**	.69*	.29	—	
7. HSC	-.39	.18	-.11	.15	.85**	.09	—
8. BHS	-.88**	-.01	-.39	.12	.62*	-.24	.65*

Note. CDI-S = Children's Depression Inventory; RCMAS = Children's Revised Manifest Anxiety Scale; HSC = Hopelessness Scale for Children; BHS = Beck Hopelessness Scale.

* $p < .05$; ** $p < .01$, one-tailed

Given that these analyses are underpowered one must be cautious in the interpretation of evident relationships. In addition, no formal tests were performed between the differences in correlations because the sample size was so small. Nevertheless, there is the tentative suggestion that adolescents with higher levels of self-reported hopelessness (as measured by the BHS) produced fewer positive memories. However, unexpectedly, there was no association between hopelessness and positive (or negative) expectancies. Adolescents with higher levels of self-reported anxiety produced more negative memories and negative future expectations, but also positive expectations. A trend that did not reach significance but looks interesting and needs further study is the negative correlation between self-reported depression and positive memories.

DISCUSSION

The present study was based on the notion that emotional disorders are characterised by biased cognitive processing of information in ways that maintain specific disorders (Beck, Rush, Shaw & Emery, 1979).

Furthermore, in terms of cognitive-affective constructs depression is characterised by thoughts of loss and hopelessness, high negative affect and low positive affect, whereas anxiety is characterised by thoughts concerning anticipated threat or harm and high negative affect (Beck et al., 1987; Clark & Watson, 1991). The reduction of positive cognitions in depression has been linked to a decreased ability to imagine positive future events or experiences, which in turn, has been associated with hopelessness in depression and parasuicidal behaviour in adults (Hunter & O'Connor, 2003; Lavender & Watkins, 2004; MacLeod et al., 1997; MacLeod et al., 1993; MacLeod et al., 2005). The present study investigated positive and negative memories and expectations about the future, and explored the relationship of these cognitions to hopelessness in clinically depressed and anxious adolescents, non-clinical sub-threshold anxious adolescents and non-clinical adolescents not experiencing psychopathology.

The first two hypotheses relating to memories of past events and expectations about future events predicted that clinical adolescents would generate fewer positive responses and more negative responses for past experiences and expectations of future experiences compared to non-clinical adolescents. The data revealed that clinically depressed and anxious adolescents generated significantly fewer positive memories and

expectations about the future than the two non-clinical groups. However, contrary to predictions, the clinical group did not generate more negative memories and expectations than the non-clinical groups. Therefore, it appeared to be the reduction in positive memories and expectations reported by the clinical group and not the increase in negative responses that contributed most to the interaction effect.

Within-group comparisons of responses (memories and expectancies) indicated that both non-clinical groups produced significantly more positive than negative responses. This provides further support for the finding that, like non-depressed adults, non-depressed adolescents show evidence of a positive cognitive bias (MacLeod et al., 1997; Malmberg & Norrgård, 1999; Pyszczynski et al., 1987). In contrast, there was no difference between the number of positive and negative responses in the clinical group which indicates an absence of the normal positive bias.

These findings are important given that cognitive theory proposes that increased activation of negative cognitive structures in depressed and anxious individuals facilitates the accessibility of negative memories and negative expectations about the future (Beck et al., 1985). The present results do not support such propositions. This is perhaps more surprising given that the clinical sample were experiencing both depressive and anxiety symptoms. The absence of increased negative thinking contrasts with Miles et al.'s (2004) study, which found that non-clinical adolescents reporting symptoms of anxiety, and those reporting symptoms of depression

generated an increase in negative responses; but neither group generated a reduction in positive responses. The present results are more in keeping with MacLeod et al.'s (1997) study with groups of clinically depressed and anxious adults which showed that depressed participants, who also had significantly elevated levels of anxiety, produced fewer positive responses (memories and expectations), but not more negative responses, than controls. MacLeod et al. suggested that these differences might be due to the severity of the mood disturbance in clinical participants. They proposed that depressed participants might avoid or repress negative thoughts that are too painful. Alternatively, the clinical participants might have been less engaged in the task, either through lack of motivation, through experiencing general cognitive deficits, or as a side-effect from medication (six of the nine clinical participants in the present study were taking medication). The latter explanation seems unlikely due to the comparable levels of general verbal fluency and working memory function measured by the control tasks. Given the ratio of males and females in the clinical sample, it is possible that gender effects contributed to the group differences. However, this explanation also seems unlikely given that the gender ratio in the non-clinical sub-threshold group were almost identical to the clinical group but did not result in similar patterns of cognitions. Given epidemiological studies have found a female to male adolescent depression ratio of 2:1 (Lewinsohn et al., 1994), future research could investigate whether male and female patterns of cognitions differ in important and systematic ways in non-clinical and clinical samples of children and adolescents by using larger numbers of

participants across a wider age-range. Explanations for the absence of an increase in negative cognitions in the clinical group remain speculative.

The current findings point to the importance of the role of positive cognitions in depression and provide evidence of the selective processing of positive information by adolescents with mixed depression and anxiety. These young people demonstrated a deficiency in the self-enhancing positive processing bias typically found in non-depressed individuals. This deficit of positive processing of memories and expectations about the future (and no evidence of an enhanced negative processing bias) is consistent with findings from some experimental information processing studies examining self-schemata via recall of newly acquired emotional material in childhood depression (Cole & Jordan, 1995; Hammen & Zupan, 1984; Prieto, et al., 1992). These studies found the absence of a memory bias for positive self-referent information in depressed children. Such a memory bias is considered to reflect a lack of positive self-schemata in depressed children and adolescents (Hammen & Zupan, 1984).

The third hypothesis predicted that non-clinical sub-threshold adolescents would generate an increased number of negative responses but not fewer positive responses (and that the difference might be more marked for future expectations than recall of past experiences) compared to non-clinical adolescents. As noted above, no group differences were found. This finding contrasts with Miles et al.'s (2004) study which found that non-clinical anxious adolescents generated more negative responses than asymptomatic

adolescents. The present findings are perhaps unsurprising given the power of the study; indeed Miles et al. (2004) included 28 participants in their non-clinical anxious group. Perhaps more importantly, although participants met sub-threshold criteria for anxiety disorders, the severity of anxiety (measured by the RCMAS) was within the normal range (mean T-score of 47.3), whereas the anxiety group categorised by Miles et al. was nearly two standard deviations above the mean (mean T-score of 69.6). Therefore, a possible explanation for the results is that the severity of anxiety in the non-clinical sub-threshold group was not high enough to activate negative cognitive structures to produce a corresponding cognitive bias. However, this cannot necessarily be assumed because the clinical group reported comparable levels of anxiety (mean T-score of 66.7) to participants in the Mile et al. study, but they did not generate more negative responses than the non-clinical groups. However, this might be due to the influence of comorbid depression symptoms experienced by the adolescents. Further research with clinically anxious participants (who are not experiencing a comorbid depressive disorder) would help to examine whether adolescents show an increase in negative cognitions without a reduction in positive cognitions.

The time periods for the memory/future thinking task (i.e. a week, year, 5-to-10 years) were chosen to facilitate the generation of responses and, as such, is an atheoretical issue. Although Miles et al. (2004) did not investigate this issue MacLeod et al. (1997) found significant differences between groups as a function of the cued time periods. In the current study, when examining negative responses there were no differences in the number of responses

(memories and expectancies) produced for a week and a year, but more negative responses were produced by all groups for the 5-to-10 year period, when compared to a year, and a week. It appeared that the number of responses increased as a function of the longer time period cued (i.e. fewest responses when thinking about a period of one week, to most responses when thinking about a period of 5-to-10 years). This has some surface logic to it, in that an individual is likely to have had more experiences to draw from over a longer period of time. However, the more interesting finding is that this effect applied consistently to both the positive and negative responses in the non-clinical groups, and to the negative responses in the clinical group. The pattern was not consistent for positive responses in the clinical group. All three groups showed an increase in the number of positive responses generated for the time period of a year, compared to a week; however, the clinical group produced significantly fewer positive responses for the period of 5-to-10 years (past and future) when compared to the non-clinical groups. This seems to indicate that the clinical adolescents might find it difficult to generate positive cognitions for more distal time periods (e.g. 5-to-10 years), but have less difficulty producing positive cognitions for more proximal time periods (e.g. up to a year). Research investigating whether this is a reliable finding and what mechanisms might explain it (e.g. cognitive resources or overgeneral memory) would be useful for further study.

The fourth hypothesis was more exploratory, but was based on the findings that hopelessness in parasuicidal and self-harming adults correlates more strongly with a lack of positive expectations about the future than with the

number of negative expectations about the future (MacLeod et al., 2005; Sidley, Calam, Wells, Hughes, & Whitaker, 1999). Thus, it was predicted that positive future expectations would be negatively correlated with levels of self-reported hopelessness. This was investigated in two exploratory correlational analyses in the present study, first, with all 40 non-clinical participants, and second, with the clinical participants (eight of whom reported at least one past episode of parasuicide). Despite the limitations acknowledged above, the results indicated that hopelessness was not significantly correlated with future expectations in both samples. This was not consistent with our predictions and furthermore, hopelessness was positively correlated with negative memories in the non-clinical adolescent sample, and strongly negatively correlated with positive memories in the clinical sample. These results suggest that hopelessness in adolescents was related to memories more strongly than to expectations, which is not at all consistent with the adult literature. However, MacLeod et al. (2005) and Sidley et al. (1999) did not measure memories, only positive and negative expectations about the future. Therefore, future research should measure positive and negative memories, in addition to expectations, in order to examine these relationships more fully.

A possible clue for the current finding that hopelessness is associated with memories might be found in the overgeneral autobiographical memory literature. This literature focuses on the qualitative nature of memories and has documented extensive evidence that depressed adults use an overgeneral mode of retrieval (van Vreeswijk & de Wilde, 2004); whereas,

non-depressed adults use a specific mode of retrieval. This means that a depressed individual's memories, both negative and positive, tend to be summaries of repeated experiences, rather than specific events anchored in a particular time and place. It is hypothesised that this early developmental mode of memory retrieval is a way of controlling affect, in that specific aspects of past events are avoided (Williams, 1996). Individuals are unaware of this tendency, but it undermines their ability to use memories to solve problems and imagine the future (Williams, Ellis, Tyers, Healy, Rose & MacLeod, 1996). Williams (1997) suggests that a situation of 'psychological entrapment' arises, whereby individuals have limited access to solutions to life situations because of overgenerality, therefore, hopelessness increases and suicidal and parasuicidal behaviours become more likely. It is possible that the relationships between memories and hopelessness are different in clinical and non-clinical adolescents. On the one hand, hopelessness might be mediated by a reduction in positive memories (which tend to be overgeneral in quality, c.f. Park, Goodyer, & Teasdale, 2002) in clinically depressed and anxious adolescents. On the other hand, hopelessness might be mediated by an increase in negative memories (which tend to be specific in quality) in non-clinical adolescents. However, if less specific memories are associated with problems in imagining a specific future (Williams et al., 1996), and a reduction in positive expectations is associated with hopelessness (MacLeod et al., 2005), then one might expect that a reduction in positive memories to be associated with a reduction in positive expectations, and that both are negatively correlated with hopelessness in the clinical sample. Why this pattern was not evident in the present study

remains unclear. Future research investigating hopelessness and the specificity of autobiographical memories and future expectations might usefully examine these relationships by assessing the number of specific memories and anticipated experiences (asking for “positive” or “negative” specific memories/expectations). This might highlight the ‘preferential’ valence and quality of depressed adolescents’ processing style. Such a method would be an adaptation of the autobiographical memory test (Williams & Broadbent, 1986) that provides equal numbers of positive and negative cue words to participants that may have little personal meaning to them. This, together with positivity and negativity memory ratings and subjective probability estimates for future expectations might be a useful way to carry the present study forward.

Given that the dysphoric adolescents in the Miles et al. (2004) study did not show a reduction in the number of positive responses (memories or expectations), these authors proposed the possibility that children and adolescents may have reduced cognitive capacity for experiencing hopelessness. They drew on evidence suggesting that depressed children typically estimate their performance negatively directly before a task and after a task, but do not estimate future performances negatively (Meyer, Dyck, & Petrinack, 1989, as cited in Miles et al., 2004). In other words, they do not see failure as enduring. The results from the current study indicate that further research is required to examine the relationships between memories, expectations and hopelessness because although the clinical adolescents endorsed significantly higher levels of self-reported hopelessness (measured

by both the HSC and BHS) compared to the non-clinical adolescents, this bore no relationship to their expectations (positive or negative) as measured by the future thinking task. This indicates that the mechanisms behind hopelessness might be different in children and adolescents compared to adults.

The strengths of this study lie in the use of a clinical sample, the systematic assessment of memories *and* future expectations, psychiatric disorder, comorbid diagnoses, depression, anxiety, hopelessness severity and verbal fluency and working memory function. However, the findings must be interpreted in the light of the study's limitations. The completion of the voice DISC first might have primed adolescents for the subsequent memory/future thinking task, it would be better for this assessment to be administered last. The mixed diagnostic nature of the clinical group made it difficult to tease apart the relative influences of depression and anxiety. The sample size of the clinical group made it difficult to draw firm conclusions from this study, particularly concerning the relationship between positive and negative cognitions and hopelessness. The lack of elicitation of neutral memories and expectations has meant that absolute responses cannot be calculated – they can only be examined in relative terms (positive to negative). The study did not gather information about adverse childhood experiences, therefore, it is possible that the clinical group had been exposed to more negative life events compared to the non-clinical sample; in addition, while the measurement of verbal fluency and working memory attempted to examine possible confounding variables there was no measure of IQ. It was also not

possible to rule out the argument that the present data reflect patient or clinical status rather than the influence of depression and anxiety. Finally, the cross-sectional nature of the data cannot address directions of effects.

In summary, these findings demonstrate that a deficit in positive cognitions and not an increase in negative cognitions is a feature of mixed depression and anxiety in adolescents; and specifically, that a deficit in the recall of positive memories (rather than expectations) appears to be related to hopelessness. These results have potentially important clinical implications and suggest that increasing positive thinking, as well as reducing negative thinking, may be important. A beneficial approach might be to assist young people in rehearsing and retrieving positive experiences in their life story in a more specific way perhaps covering a longer time frame. In addition, encouraging behavioural engagement in activities together with the development of more specific encoding and attentional skills concerning positive present experiences (instead of adopting a ruminative response-style to low mood found to be characteristic in depression (Nolen-Hoeksema & Morrow, 1993)) might help to tip the relative balance of positive to negative cognitions and buffer adolescents against symptoms of depression. These are all issues for future research to address.

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Appendix 1: Clinical Psychology Review - Guide for Authors

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Appendix 2: Table 1. Explicit memory studies of newly acquired emotional material in depressed children and adolescents.

Study	Participants	Diagnostic measure / measures	Cognitive measure(s)	Method	Findings	Mood congruent memory bias (✓/✗)
Hammen & Zupan (1984)	Nonclinical (8-12 years) Dep=14 NonD=12	o CDI o PHSCS	Self-reference word endorsement Incidental recall	Level of processing encoding task (structure or self-referential): 22 +ve, 22 -ve trait words	o Superior recall of self-descriptive encoded words (both gps) o +ve word recall: nonD > dep o -ve word recall: nonD = dep o Dep: trend for recalling more -ve words in self-descriptive versus structural cond. o NonD: +ve > -ve word recall o Dep: +ve = -ve word recall	NonD versus dep: ✓ positive recall bias for nonD group ✗ negative recall bias for dep group NonD: ✓ positive recall bias Dep: ✗ negative recall bias ✗ positive recall bias
Zupan, Hammen, & Jaenicke (1987)	Children of mothers with affective disorder, chronic medical illness, & stress (8-16 years) Dep=20 NonD=21	o K-SADS (mother; child) o CDI	Self-reference word endorsement Incidental recall	Level of processing encoding task (structure or self-referential): 22 +ve, 22 -ve trait words	o Superior recall of self-descriptive encoded words (both gps) o +ve word recall: nonD > dep o -ve word recall: nonD < dep o NonD +ve word recall: self-referential > structural condition o NonD -ve word recall: self-referential = structural condition o Dep +ve word recall: self-referential = structural condition o Dep -ve word recall: self-referential > structural condition	NonD versus dep: ✓ positive recall bias for nonD gp ✓ negative recall bias for dep gp NonD: ✓ positive recall bias Dep: ✓ negative recall bias ✗ positive recall bias

Study	Participants	Diagnostic measure / measures	Cognitive measure(s)	Method	Findings	Mood congruent memory bias (✓/✗)
Hughes, Worchel, Stanton, Stanton, & Hall (1990)	Nonclinical (10-13 years) Self-report: Dep=40 NonD=49 Peer nominated: Dep=30 NonD=32	o CDI o PNID	Intentional recall Recognition and intrusions (of filler events)	Story of day in the life of a typical teenage girl: 10 +ve, 10 -ve events Recognition from: 20 +ve, 20 -ve events	Grouped on self-reported depression: o Overall recall: females > males o Overall recall: -ve > +ve events o Overall recognition: dep < nonD o Overall recognition: +ve > -ve events o -ve recognition: dep < nonD o +ve recognition: dep = nonD o Overall intrusions: dep > nonD o Overall intrusions: +ve > -ve events Grouped on peer-nominated depression: o Overall recall: females > males o Overall recall: -ve > +ve events o Overall recognition: females > males o Overall recognition: +ve > -ve events o -ve recognition: dep males < nonD males o +ve recognition: dep = nonD o Overall intrusions: males > females o Overall intrusions: +ve > -ve events	NonD versus dep: ✗ positive recall bias for nonD group (self-report & peer nominated groupings) ✗ negative recall bias for dep group (self-report & peer nominated groupings) ✓ negative recall bias for dep and nonD groups
Prieto, Cole, & Tageson (1992)	Mixed (8-12 years) clinic dep=15 clinic nonD=18 community nonD=17	o CDI (parent & child rated) o Diagnoses from clinic records	Reaction time of self-reference word endorsement Incidental recall Recognition	Encoding task (self-referential): 30 +ve, 30 -ve trait words Recognition task 80 words Rate each word	o Community nonD & clinic nonD: +ve > -ve word recall o Clinic dep: +ve = -ve o +ve word recall: community nonD & clinic nonD > dep o -ve word recall: ? (not reported) o Community nonD, clinic nonD, & clinic dep word recognition: +ve > -ve o Clinic dep: difference between +ve & -ve word recognition was smaller o Recall of +ve & -ve material did not discriminate between gps after effects of word recognition were controlled	Community nonD versus clinic nonD versus dep: ✓ positive recall bias for community nonD & clinic nonD groups ? negative recall bias for clinic dep group Community nonD and Clinic nonD: ✓ positive recall bias Clinic dep: ✗ negative recall bias ✗ positive recall bias

Study	Participants	Diagnostic measure / measures	Cognitive measure(s)	Method	Findings	Mood congruent memory bias (✓/✗)
Cole & Jordan (1995)	Nonclinical (9-15 years: grades 4-8) Low dep=44 High dep=20	<ul style="list-style-type: none"> ○ CDI (2 screenings) ○ PNMC ○ RCMAS ○ YSRP (externalizing scale) 	<ul style="list-style-type: none"> Self-reference word endorsement Incidental recall 	<p>Encoding task (self-referential): 16 +ve, 16 -ve trait words</p> <p>for each of 5 domains (academic, social, athletic, conduct, appearance)</p>	<ul style="list-style-type: none"> ○ Significant relation between +ve & -ve peer nominations of competence and recall of +ve and -ve self-referential information, respectively ○ +ve word recall: high dep < low dep (across all grades) ○ -ve word recall: by grade 8, high dep > low dep <p>N.B. No within subjects comparisons (positive versus negative word recall) performed therefore biases not known</p>	<p>Low versus high dep:</p> <ul style="list-style-type: none"> ✓ positive recall bias for low dep group ✓ negative recall bias for older depressed children ✗ negative recall bias for younger depressed children
Rudolph, Hammen, & Burge (1997)	Nonclinical (8-12 years) Low dep=51 High dep=30	<ul style="list-style-type: none"> ○ CDI ○ RCMAS 	<ul style="list-style-type: none"> ○ POPS ○ CRPBI ○ APP ○ CESBQ Incidental recall (story about mother-child transactions) Incidental recall (mother-referent / structure) 	<p>Questionnaires read aloud, written self-report</p> <p>Story task about daily interactions between hypothetical mother & child including maternal attributes (9 +ve & 9 -ve)</p> <p>Level of processing encoding task (mother-referential and structure): 22 +ve, 22 -ve words</p>	<ul style="list-style-type: none"> ○ High dep: a) viewed mother / family & peers as less accepting, trustworthy, supportive; b) more pessimistic expectancies re. outcomes of interpersonal transactions; c) perceived self as less competent & worthy in peer relationship context ○ -ve maternal word recall (story task): high dep > low dep ○ Low dep (level of processing task): +ve > -ve (mother referent words) ○ High dep (level of processing task): +ve = -ve (mother referent & structurally encoded) 	<p>Low versus high dep:</p> <ul style="list-style-type: none"> ? positive recall bias for low dep group ✓ negative recall bias for high dep group <p>Low dep:</p> <ul style="list-style-type: none"> ✓ positive recall bias <p>High dep:</p> <ul style="list-style-type: none"> ✗ negative recall bias ✗ positive recall bias

Study	Participants	Diagnostic measure / measures	Cognitive measure(s)	Method	Findings	Mood congruent memory bias (✓/✗)
Neshat-Doost, Taghavi, Moradi, Yule, & Dalgleish, (1998)	Mixed (10-17 years) Clinic dep=19 Community nonD=19	<ul style="list-style-type: none"> o Consensual diagnosis from mental health team; o Scores above cutoff on: CDI, DSRS, MFQ RCMAS BPVS WORD (reading) 	Intentional recall Recognition	Encoding task (repeat 3 times; does word make sense) 20 +ve trait words 20 -ve trait words 20 neutral (animal words) 60 filler words (+ve, -ve, neutral)	<ul style="list-style-type: none"> o Overall recall of words: NonD > dep o Overall: +ve < neut, -ve word recall o Overall: neut = -ve word recall o Dep: -ve > +ve; neut = -ve; neut > +ve o NonD: +ve = -ve; neut > -ve; neut > +ve o +ve word recall: dep ? nonD o Neutral word recall: dep ? nonD o -ve word recall: dep ? nonD o No gp differences on recognition memory o Relationship between dep level & -ve recall bias relative to +ve stronger in older pts o Relationship between dep level & bias away from +ve relative to neutral words increased with age 	<p>Community nondep: ✗ positive recall bias</p> <p>Clinic dep: ✓ negative recall bias ✗ positive recall bias</p> <p>All participants: - dep level & recall bias towards negative (relative to positive) increased with age - dep level & recall bias away from positive (relative to neutral) increased with age</p>
Taylor and Ingram (1999)	Children of: clinically dep mothers high risk=40 NonD mothers low risk=46 (8-12 years) assigned to neutral or sad-mood induction	<ul style="list-style-type: none"> o Mothers: SCID o BDI o Children: No diagnostic information for children o CDI o PPVT-R 	Self-reference word endorsement Incidental recall	Encoding task (self-referential): 20 +ve trait words 20 -ve trait words	<ul style="list-style-type: none"> o +ve word endorsement: high risk (-ve mood) < high risk (neut mood), low risk (either -ve or neut mood) o -ve word endorsement: Low risk (neut mood) < low risk (-ve mood), high risk (either -ve or neut mood) o +ve word recall: high risk (-ve & neutral mood) = low risk (-ve & neutral mood) o -ve word recall: high risk (-ve mood) > high risk (neut mood); low risk (-ve mood) = low risk (neutral mood) 	<p>Low risk (neutral mood): ✗ positive memory bias</p> <p>Low risk (negative mood): ✗ positive memory bias ✗ negative memory bias</p> <p>High risk (neutral mood): ✗ positive memory bias ✗ negative memory bias</p> <p>High risk (negative mood): ✓ negative memory bias</p>

Study	Participants	Diagnostic measures	Cognitive measure(s)	Method	Findings	Mood congruent memory bias (✓/✗)
Timbremont & Braet (2004)	Obese paediatric in-patients (8-16 years) Never dep=15 Dep=19 Remitted dep=10	o CDI (time 1 & time 2 -- 3 months later)	Self-reference word endorsement Intentional recall	Encoding task (self-referential): 10 +ve trait 10 -ve trait	o +ve word endorsement: remitted dep = never dep & dep; never dep > dep o -ve word endorsement: never dep < dep and remitted dep; dep = remitted dep o Dep: -ve = +ve word endorsement o Never dep & remitted dep: +ve > -ve word endorsement o +ve word recall: never dep > dep & remitted dep; dep = remitted dep o -ve word recall: remitted dep = dep & never dep; dep > never dep o Dep & remitted dep: +ve = -ve words recalled o Never dep: +ve > -ve words recalled	Never dep versus remitted dep versus dep: ✓ positive recall bias for never dep group ✓ negative recall bias for dep group
Bishop, Dalgleish, & Yule (2004)	Community children 5½ - 7½ years: Low dep=18 High dep=22 7½ - 9 ½ years Low dep=17 High dep=17 9½ - 11 years: Low dep=19 High dep=20	o DSRS o SCAS o BPVS N.B. Only study to not use CDI	Self-reference instructions (pretend they are the protagonist & events happening to them) Intentional recall of story units (sections 1 & 2)	Emotional stories recall task: "Park", "beach", & "going home" stories (each as +ve, neut, -ve version & male/female version) 3 stories (+ve, neut, -ve matched gender to ppt) presented	o Overall recall: age gp 3 > age gp 1; age gp 2 = age gp 1 & 3 o Overall recall: higher verbal IQ associated with greater recall o Overall recall: section 1 > section 2 o Recall: sect 1= no diff; sect 2=-ve > +ve & neut units o Low dep: +ve > neut recall; -ve > neut recall (trend); +ve = -ve recall o High dep: -ve > +ve & neut recall; +ve = neut recall o +ve recall: low dep > high dep o -ve recall: low dep = high dep	Low dep versus high dep: ✗ positive recall bias for high dep group ✗ negative recall bias for high dep group Low dep: ✗ positive recall bias High dep: ✗ positive recall bias (across all age groups) ✓ negative recall bias (across all age groups)

Note: Dep = depressed; NonD = nondepressed; CDI= Children's Depression Inventory; PHSCS = Piers-Harris Self-Concept Scale; K-SADS = Kiddie Schedule for Affective Disorders and Schizophrenia; PNID = Peer Nomination Inventory of Depression; PNMC = Peer Nomination Measure of Competence; RCMAS = Revised Children's Manifest Anxiety Scale; YSRP = Youth Self-Report Profile; POPS = Perceptions of Peers and Self Questionnaire; CRPBI = Child's Report of Parental Behaviour Inventory-Revised; APP = Social Support Appraisals Scale; CESBQ = Children's Expectations of Social Behaviour Questionnaire; DSRS = Depression Self-Rating Scale; MFQ = Mood and Feeling Questionnaire; BPVS = British Picture Vocabulary Scale; WORD = Wechsler Objective Reading Dimensions; SCID = Structured Clinical Interview for DSM-III-R; BDI = Beck Depression Inventory; PPVT-R = Revised Peabody Picture Vocabulary Test; DSRS = Depression Self-Rating Scale; SCAS = Spence Children's Anxiety Scale.

Appendix 2: Table 2. Overgenerality/specificity autobiographical memory (AM) studies in depressed adolescents.

Study	Participants	Diagnostic measure / measures	Method	Cognitive measure(s)	Findings	Conclusions
Orbach, Lamb, Sternberg, Williams, Dawud-Noursi (2001)	(Experienced family violence=34) Victims of abuse=16 Witness of abuse=6 Victims & witnesses of abuse=12 No experience of family violence=16	o CDI	o FDQ o Coded on utterance by utterance basis using Williams' (1993) procedure o Responses were audiotaped	o Specific utterances o Generic-categoric utterances o Generic-extended utterances o Omissions o First & last responses o No. of prompts	o Children who were victims of family violence were more depressed than comparison group o Positive relationship between the proportion of overgeneral categoric last responses & depression scores across whole sample o Overgeneral categoric responses: no differences between groups o Omissions: more likely to follow questions about physical than non-physical incidents & worst parental action rather than neutral content for children who experienced family violence	Across whole sample: o Those who were more depressed retrieved less specific AM
Swales, Williams & Wood (2001)	Clinical in-patients & nonclinical (age range ?; mean age 14 years) Clinical=26 (mixed diagnoses) Nonclinical=24	o BDI o BHS	o AMT: o 3 practice cues o 5 +ve, 5 -ve cue words on flashcards, 30 secs to retrieve SM o Recording of responses ?	o Number of specific first responses o Mean total specificity o Mean specificity to -ve & +ve cues o Mean latency to -ve & +ve cues	o Clinical group were more depressed than nonclinical group o Response latency (+ve cues): clinical group > nonclinical group o +ve & -ve cues: clinical group less specific than nonclinical group o Clinical group: specificity positively correlated with depression & hopelessness	Clinical group (vs nonclinical group) o Less specific in response to +ve & -ve cues o More depressed & hopeless adolescents were more specific

Study	Participants	Diagnostic measure / measures	Method	Cognitive measure(s)	Findings	Conclusions
Park, Goodyer, & Teasdale (2002)	Clinic & community (12-17 years) Dep=49 Partial remission=38 Full remission=9 NonD psychiatric controls=26 Community controls=33	<ul style="list-style-type: none"> o K-SADS (adolescents & parents separately) (short form with controls) o HDRS (researcher -rated) o WISCII – vocabulary & block design o MFQ 	<ul style="list-style-type: none"> o AMT: 4 parallel sets of 6 +ve, 6 -ve cue words on flashcards, 60 secs to retrieve SM o Responses were audiotaped 	<ul style="list-style-type: none"> o Number of first responses to +ve/-ve cues: <ul style="list-style-type: none"> o Specific o Categorical (overgeneral) o Extended o Repeated o Omission o Proportions of CMs calculated 	<ul style="list-style-type: none"> o Proportions of omissions: no group differences o Proportions of repeated memories: no group differences o CMs (+ve & -ve): dep > community controls o CM (+ve): Fully remitted adolescents > controls o Dep & NonD psychiatric groups: categorical to -ve cues > +ve cues o CMs to -ve (not +ve) cues positively correlated with MFQ & HDRS o CMs (+ve & -ve) were negatively correlated with IQ 	<ul style="list-style-type: none"> o Depressed clinical group (vs controls): <ul style="list-style-type: none"> o More positive & negative CMs o Fully remitted dep group vs controls: <ul style="list-style-type: none"> o More positive CMs (not negative) o Depressed clinical group vs nondepressed clinical controls: <ul style="list-style-type: none"> o Equal proportions of CM (not specific to depression) o Both observer & self-report mood positively related to CM to -ve cues in dep adolescents but not for clinical nonD adolescents o Negative correlations between IQ and CMs in clinical cases & controls

Study	Participants	Diagnostic measure / measures	Method	Cognitive measure(s)	Findings	Conclusions
Park, Goodyer, & Teasdale (2004)	Clinic & community (12-17 years) Dep=44 Partial remission=31 NonD psychiatric=26 Community controls=33	<ul style="list-style-type: none"> o K-SADS (adolescents & parents separately) (short form with controls) o HDRS (researcher-rated) o WISC-II – vocabulary & block design o MFQ 	<ul style="list-style-type: none"> o AMT: At least 2 practice items, 4 parallel sets of 6 +ve, 6 -ve cue words on flashcards, 60 secs to retrieve SM o Responses were audiotaped 	<ul style="list-style-type: none"> o Number of first responses to +ve/-ve cues: <ul style="list-style-type: none"> o Specific o Categorical (overgeneral) o Extended o Repeated o Omission o Proportions of CMs calculated o In the moment visual analogue scale (VAS) for sad mood 	<ul style="list-style-type: none"> o Dep & partial remitted dep: increase in dep was greater with rumination than distraction o Dep & community controls: increase in dep was greater with rumination than distraction (no differential effect for nonD psychiatric group) o No group differences in the number of omissions o No group differences in proportions of extended or repeated memories o Within dep group (dep + partial remission): no differential effect of rumination compared to distraction on number of omissions o Within dep group (dep + partial remission): greater increase in proportion of CMs retrieved with rumination than with distraction o Within dep group (dep + partial remission) -ve CMs: increase with rumination vs distraction o Within dep group (dep + partial remission) +ve CMs: no effects o No correlation between change in VAS scores & change in CMs induced with rumination & distraction o NonD psychiatric & control groups: no differential effect of rumination vs distraction on -ve CMs o No effects of age, IQ, diagnoses comorbid to dep 	<ul style="list-style-type: none"> o Differential increase in depression with rumination vs distraction is specific to depression o Depressed adolescents: Rumination increased CMs but distraction had no significant effect o Increases in CMs with rumination was only for -ve cues (not +ve)

Note: Dep = depressed; NonD = nondepressed; SM = specific memory; CM = categoric overgeneral memory; CDI = Children's Depression Inventory; FDQ = Family Disagreements Questionnaire; BDI = Beck Depression Inventory; BHS = Beck Hopelessness Scale; THQ = Trauma History Questionnaire; CIES = Children's Impact of Event Scale; AMT = Autobiographical Memory Test; SCID = Structured Clinical Interview for DSM-IV; K-SADS-PL = Schedule for Affective Disorders and Schizophrenia for School-age Children; HDRS = Hamilton Depression Rating Scale; WISC-II (UK) = Wechsler Intelligence Scale for Children; MFQ = Mood and Feeling Questionnaire

Appendix 2: Table 3. Adolescent memory/future thinking study.

Study	Participants	Diagnostic measure / measures	Method	Cognitive measure(s)	Findings	Conclusions
Miles, MacLeod, & Pote (2004)	Nonclinical (11-16 years) (N=123)	<ul style="list-style-type: none"> o CDI-S o RCMAS o PANAS o Verbal fluency task 	<ul style="list-style-type: none"> Memory/ future thinking task (adapted for use with groups): <ul style="list-style-type: none"> o +ve memories (week, year, 5-10 years) o -ve memories (week, year, 5-10 years) o +ve expectancies (week, year, 5-10 years) o -ve expectancies (week, year, 5-10 years) Counterbalanced presentation 60 sec for each cue Answers written down 	<ul style="list-style-type: none"> Number of: <ul style="list-style-type: none"> o +ve memories for each time period o -ve memories for each time period o +ve expectancies for each time period o -ve expectancies for each time period 	<ul style="list-style-type: none"> o No group differences on verbal fluency o Positive affect: dep < nonD, anxious = nonanxious o Negative affect: anxious > nonanxious, dep = nonD o -ve responses (memories & expectancies): dep > nonD o +ve responses (memories & expectancies): dep = nonD o When anxiety level used as covariate above effect lost o -ve responses (memories & expectancies): anxious > nonanxious o +ve responses (memories & expectancies): anxious = nonanxious o When depression level used as covariate above effect lost o Negative affect correlated positively with -ve memories & expectancies o Positive affect correlated positively with +ve memories & expectancies o Positive affect correlated positively with -ve expectancies (?) 	<ul style="list-style-type: none"> <i>Depressed and anxious groups (relative to controls):</i> <ul style="list-style-type: none"> o generate more negative memories and expectancies <i>Depressed group (relative to nondepressed group):</i> <ul style="list-style-type: none"> o do not show fewer positive memories and expectancies Across whole sample: <ul style="list-style-type: none"> o Adolescents high in negative affect produce more negative memories & expectancies o Adolescents high in positive affect produce more positive memories & expectancies

Note: Dep = depressed; NonD = nondepressed; CDI-S = Children's Depression Inventory, short form; RCMAS = Revised Children's Manifest Anxiety Scale; PANAS = Positive Affect and Negative Affect Scale;

Appendix 3: Clinical Psychology and Psychotherapy - Instructions to

Authors

Initial Manuscript Submission. Submit three copies of the manuscript (including copies of tables and illustrations) to either of the Editors:

Professor Paul Emmelkamp, Faculty of Psychology, Department of Clinical Psychology, University of Amsterdam, Roetersstraat 15, 1018 WB Amsterdam, The Netherlands.

Professor Mick Power, Department of Psychiatry, Royal Edinburgh Hospital, University of Edinburgh, Edinburgh EH10 5HF, UK.

Authors must also supply:

- an electronic copy of the final version (see section below)
- a Copyright Transfer Agreement with original signature(s) - without this we are unable to accept the submission, and
- permission grants - if the manuscript contains extracts, including illustrations, from other copyright works (including material from on-line or intranet sources) it is the author's responsibility to obtain written permission from the owners of the publishing rights to reproduce such extracts using the Wiley Permission Request Form. Permission grants should be submitted with the manuscript.

Submission of a manuscript will be held to imply that it contains original unpublished work and is not being submitted for publication elsewhere at the same time. Submitted material will not be returned to the author, unless specifically requested.

Electronic submission. The electronic copy of the final, revised manuscript must be sent to the Editor **together with** the paper copy. Disks should be PC or Mac formatted; write on the disk the software package used, the name of the author and the name of the journal. We are able to use most word processing packages, but prefer Word or WordPerfect and TeX or one of its derivatives.

Illustrations must be submitted in electronic format where possible. Save each figure as a separate file, in **TIFF** or **EPS** format preferably, and include the source file. Write on the disk the software package used to create them; we favour dedicated illustration packages over tools such as Excel or Powerpoint.

Manuscript style. The language of the journal is English. All submissions including book reviews must have a title, be printed on one side of the paper, be double-line spaced and have a margin of 3cm all round. Illustrations and tables must be printed on separate sheets, and not be incorporated into the text.

- The **title page** must list the full title, a short title of up to 70 characters and names and affiliations of all authors. Give the full address, including email, telephone and fax, of the author who is to check the proofs.
- Include the name(s) of any **sponsor(s)** of the research contained in the paper, along with **grant number(s)**.
- Supply an **abstract** of up to 150 words for all articles except book reviews. An **abstract** is a concise summary of the whole paper, not just the conclusions, and is understandable without reference to the rest of the paper. It should contain no citation to other published work.

Research Articles: Substantial articles making a significant theoretical or empirical contribution.

Assessments: Articles reporting useful information and data about new or existing measures.

Practitioner Reports: Shorter articles that typically contain interesting clinical material.

Book Reviews: Critical summaries of recent books that are of general interest to readers of the journal.

Reference style. The APA system of citing sources indicates the author's last name and the date, in parentheses, within the text of the paper.

A. A typical citation of an entire work consists of the author's name and the year of publication.

Example: Charlotte and Emily Bronte were polar opposites, not only in their personalities but in their sources of inspiration for writing (Taylor, 1990). Use the last name only in both first and subsequent citations, except when there is more than one author with the same last name. In that case, use the last name and the first initial.

B. If the author is named in the text, only the year is cited.

Example: According to Irene Taylor (1990), the personalities of Charlotte. . .

C. If both the name of the author and the date are used in the text, parenthetical reference is not necessary.

Example: In a 1989 article, Gould explains Darwin's most successful. . .

D. Specific citations of pages or chapters follow the year.

Example: Emily Bronte "expressed increasing hostility for the world of human relationships, whether sexual or social" (Taylor, 1988, p. 11).

E. When the reference is to a work by two authors, cite both names each time the reference appears.

Example: Sexual-selection theory often has been used to explore patters of various insect matings (Alcock & Thornhill, 1983) . . . Alcock and Thornhill (1983) also demonstrate. . .

F. When the reference is to a work by three to five authors, cite all the authors the first time the reference appears. In a subsequent reference, use the first author's last name followed by *et al.* (meaning "and others").

Example: Patterns of byzantine intrigue have long plagued the internal politics of community college administration in Texas (Douglas *et al.*, 1997) When the reference is to a work by six or more authors, use only the first author's name followed by *et al.* in the first and all subsequent references. The only exceptions to this rule are when some confusion might result because of similar names or the same author being cited. In that case, cite enough authors so that the distinction is clear.

G. When the reference is to a work by a corporate author, use the name of the organization as the author.

Example: Retired officers retain access to all of the university's educational and recreational facilities (Columbia University, 1987, p. 54).

H. Personal letters, telephone calls, and other material that cannot be retrieved are not listed in References but are cited in the text.

Example: Jesse Moore (telephone conversation, April 17, 1989) confirmed that the ideas. . .

I. Parenthetical references may mention more than one work, particularly when ideas have been summarized after drawing from several sources. Multiple citations should be arranged as follows.

Examples:

- List two or more works by the same author in order of the date of publication: (Gould, 1987, 1989)
- Differentiate works by the same author and with the same publication date by adding an identifying letter to each date: (Bloom, 1987a, 1987b)
- List works by different authors in alphabetical order by last name, and use semicolons to separate the references: (Gould, 1989; Smith, 1983; Tutwiler, 1989).

All references must be complete and accurate. Where possible the DOI for the reference should be included at the end of the reference. Online citations should include date of access. If necessary, cite unpublished or personal work in the text but do not include it in the reference list. References should be listed in the following style:

Journal Article

Gardikiotis, A., Martin, R., & Hewstone, M. (2004). The representation of majorities and minorities in the British press: A content analytic approach. *European Journal of Social Psychology, 34*, 637-646. DOI: 10.1002/ejsp.221

Book

Paloutzian, R. F. (1996). *Invitation to the psychology of religion* (2nd ed.). Boston: Allyn and Bacon.

Book with More than One Author

Natarajan, R., & Chaturvedi, R. (1983). *Geology of the Indian Ocean*. Hartford, CT: University of Hartford Press.

Hesen, J., Carpenter, K., Moriber, H., & Milsop, A. (1983). *Computers in the business world*. Hartford, CT: Capital Press. and so on.

The abbreviation *et al.* is not used in the reference list, regardless of the number of authors, although it can be used in the text citation of material with three to five authors (after the initial citation, when all are listed) and in all parenthetical citations of material with six or more authors.

Web Document on University Program or Department Web Site

Degelman, D., & Harris, M. L. (2000). *APA style essentials*. Retrieved May 18, 2000, from Vanguard University, Department of Psychology Website: http://www.vanguard.edu/faculty/ddegelman/index.cfm?doc_id=796

Stand-alone Web Document (no date)

Nielsen, M. E. (n.d.). *Notable people in psychology of religion*. Retrieved August 3, 2001, from <http://www.psywww.com/psyrelig/psyrelpr.htm>

Journal Article from Database

Hien, D., & Honeyman, T. (2000). A closer look at the drug abuse-maternal aggression link. *Journal of Interpersonal Violence*, 15, 503-522. Retrieved May 20, 2000, from ProQuest database.

Abstract from Secondary Database

Garrity, K., & Degelman, D. (1990). Effect of server introduction on restaurant tipping. *Journal of Applied Social Psychology*, 20, 168-172. Abstract retrieved July 23, 2001, from PsycINFO database.

Article or Chapter in an Edited Book

Shea, J. D. (1992). Religion and sexual adjustment. In J. F. Schumaker (Ed.), *Religion and mental health* (pp. 70-84). New York: Oxford University Press.

Illustrations. Supply each illustration on a separate sheet, with the lead author's name and the figure number, with the top of the figure indicated, on the reverse. Supply original **photographs**; photocopies or previously printed material will not be used. Line artwork must be high-quality laser output (not photocopies). Grey shading (tints) are not acceptable; lettering must be of a reasonable size that would still be clearly legible upon reduction, and consistent within each figure and set of figures. Supply artwork at the intended size for printing. The artwork must be sized to the text width of 7 cm (single column), 15 cm (double column).

The cost of printing **colour** illustrations in the journal will be charged to the author. The cost is approximately £700 per page. If colour illustrations are supplied electronically in either **TIFF** or **EPS** format, they may be used in the PDF of the article at no cost to the author, even if this illustration was printed in black and white in the journal. The PDF will appear on the *Wiley InterScience* site.

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Proofs. Proofs will be sent to the author for checking. This stage is to be used only to correct errors that may have been introduced during the production process. Prompt

return of the corrected proofs, preferably within two days of receipt, will minimise the risk of the paper being held over to a later issue. 25 complimentary offprints will be provided to the author who checked the proofs, unless otherwise indicated. Further offprints and copies of the journal may be ordered. Book review authors will receive one free copy of the journal issue in which their book review appears. There is no page charge to authors.

Appendix 4: University of Southampton ethics committee approval

letter



University
of Southampton

School of Psychology

University of Southampton Tel +44 (0)23 8059 3995
Highfield Southampton Fax +44 (0)23 8059 4597
SO17 1BJ United Kingdom

30 June 2005

Rachel Seymour
Department of Clinical Psychology
University of Southampton
Southampton
SO17 1BJ

Dear Rachel,

Re: The role of positive cognition in adolescent depression

I am writing to confirm that the above titled ethics application was approved by the School of Psychology Ethics Committee on 29 June 2005.

Should you require any further information, please do not hesitate in contacting me on 023 8059 3995.

Please quote approval reference number CLIN/03/80.

Yours sincerely,

Kathryn Smith
Secretary to the Ethics Committee

Appendix 5: NHS Southampton & South West Hampshire Research Ethics Committees (A) approval letter for all sites



STA

02 February 2006

Dr Rachel C Seymour
Trainee Clinical Psychologist (D Clin Psychol)
Taunton and Somerset NHS Trust
University of Southampton, School of Psychology
Highfield
Southampton
SO17 1BJ

**SOUTHAMPTON & SOUTH WEST HAMPSHIRE
RESEARCH ETHICS COMMITTEES (A)**

1ST Floor, Regents Park Surgery
Park Street, Shirley
Southampton
Hampshire
SO16 4RJ

Tel: 023 8036 2466
023 8036 3462
Fax: 023 8036 4110

Email: GM.E.hio-au.SWHRECA@nhs.net

Dear Dr Seymour

Full title of study: Investigating the role of positive cognition in adolescent depression
REC reference number: 05/Q1702/95

The REC gave a favourable ethical opinion to this study on 16 November 2005.

Further notification(s) have been received from local site assessor(s) following site-specific assessment. On behalf of the Committee, I am pleased to confirm the extension of the favourable opinion to the new site(s). I attach an updated version of the site approval form, listing all sites with a favourable ethical opinion to conduct the research.

Research governance approval

The Chief Investigator or sponsor should inform the local Principal Investigator at each site of the favourable opinion by sending a copy of this letter and the attached form. The research should not commence at any NHS site until research governance approval from the relevant NHS care organisation has been confirmed.

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees (July 2001) and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

05/Q1702/95	Please quote this number on all correspondence
-------------	--

Yours sincerely

**Mrs Sharon Atwill
Acting Committee Co-ordinator**

Email: GM.E.hio-au.SWHRECA@nhs.net

Enclosure: Site approval form

Appendix 5: Southampton & South West Hampshire Research Ethics

Committees (A) approval letter for all sites

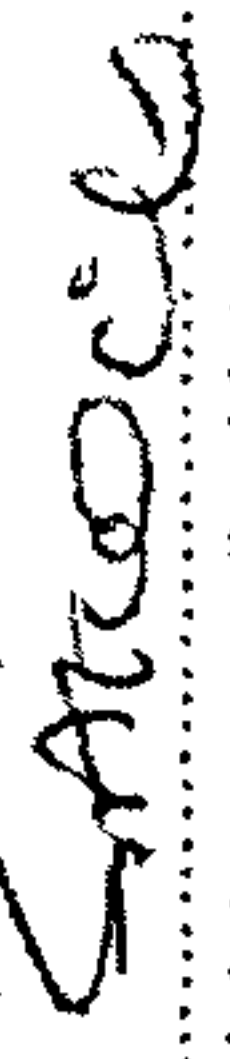
Southampton & South West Hampshire REC (A)					
LIST OF SITES WITH A FAVOURABLE ETHICAL OPINION					
For all studies requiring site-specific assessment, this form is issued by the main REC to the Chief Investigator and sponsor with the favourable opinion letter and following subsequent notifications from site assessors. For issue 2 onwards, all sites with a favourable opinion are listed, adding the new sites approved.					
REC reference number:	05/Q1702/95	Issue number:	2	Date of issue:	
Chief Investigator:		Dr Rachel C Seymour			
Full title of study:		Investigating the role of positive cognition in adolescent depression			
This study was given a favourable ethical opinion by Southampton & South West Hampshire REC (A) on 16 November 2005. The favourable opinion is extended to each of the sites listed below. The research may commence at each NHS site when management approval from the relevant NHS care organisation has been confirmed.					
Principal Investigator	Post	Research site	Site assessor	Date of favourable opinion for this site	Notes ⁽¹⁾
Dr Rachel C Seymour	Trainee Clinical Psychologist (D.Clin.Psychol)	Leigh House Hospital Leigh House Adolescent Unit Alresford Road Winchester Hants SO21 1HD	North & Mid Hampshire Local Research Ethics Committee	17/11/2005	
Dr Rachel C Seymour	Trainee Clinical Psychologist (D.Clin.Psychol)	Specialist Child and Adolescent Mental Health Service (Specialist CAMHS, Isle of Wight)	Isle of Wight, Portsmouth & South East Hampshire Local Research Ethics Committee	02/02/2006	
Dr Rachel C Seymour	Trainee Clinical Psychologist	Brookvale Adolescent Service (South-West)	Southampton & South West Hampshire LREC	02/02/2006	

Appendix 5: Southampton & South West Hampshire Research Ethics Committees (A) approval letter for all sites

05/Q1702/95

Page 2

	(D.Clin.Psychol)	Hants) Totton Health Centre Testwood Lane Totton SO40 9ZN	(B)		
Dr Rachel C Seymour	Trainee Clinical Psychologist (D.Clin.Psychol)	Brookvale Adolescent Service (Southampton City) 30 Brookvale Road Southampton SO17 1QR	Southampton & South West Hampshire LREC (B)	02/02/2006	

Approved by the Chair on behalf of the REC:

 (Signature of Chair/Administrator)
 (delete as applicable)
 Mrs Sharon Atwill

⁽¹⁾ The notes column may be used by the main REC to record the early closure or withdrawal of a site (where notified by the Chief Investigator or sponsor), the suspension of termination of the favourable opinion for an individual site, or any other relevant development. The date should be recorded.

Appendix 6a: Personal memory task (negative condition)

Participant number:

Date:

Past negative (order presented)

“For this one, try to think of as many negative, horrible things that have already happened to you. These can be bad things, things that you didn’t enjoy or things that you disliked”. For example, you might say, “when I went to the dentist”. Do you understand?

<p>Tell me all the bad things that have happened in the past week since..... up to today.</p>
<p>Tell me all the bad things that have happened in the past year since</p>
<p><i>Tell me all the bad things that have happened in the past 5-10 years when you were years old to years old</i></p>

Appendix 6b: Personal memory task (positive condition)

Participant number:

Date:

Past positive (order presented)

“For this one, try to think of as many positive, nice things that have already happened to you. These can be good things, things that you have enjoyed or things that you liked”. For example, you might say, “when I went to my friend’s house”. Do you understand?

Tell me all the good things that happened in the past week, since up to today.

Tell me all the good things that happened in the past year since

Tell me all the good things that have happened in the past 5-10 years when you were years old to years old

Appendix 6c: Future thinking task (negative condition)

Participant number:

Date:

Future negative (order presented)

“For this one, try to think of as many negative things that will happen to you in the future. These can be things that you know are going to happen, things that might happen or things that could reasonably happen. These are bad things, things that you won’t enjoy or things that you might not like”. For example, you might say, “when I go to the dentist”. Do you understand?

Tell me all the bad things that will or might happen in the next week up to

Tell me all the bad things that will or might happen in the next year up to

Tell me all the bad things that will or might happen in the next 5-10 years when you will be toyears old

Appendix 6d: Future thinking task (positive condition)

Participant number:

Date:

Future positive (order presented)

“For this one, try to think of as many positive things that will happen to you in the future. These can be things that you know are going to happen, things that you would like to happen or things that could reasonably happen. These are good things, things that you will enjoy or things that you might like”. For example, you might say, “when I go to stay at my friend’s house”. Do you understand?

Tell me all the good things that will or might happen in the next week up to

Tell me all the good things that will or might happen in the next year up to

Tell me all the good things that will or might happen in the next 5-10 years when you will be toyears old

Appendix 7: Scoring criteria for personal memory/future thinking task

Guidelines to be applied when scoring either the memory or future thinking task:

1. Each answer counts only once
2. The score is the total number of accounts in each section
3. Each answer needs to be distinct from the others
4. If a category label is provided (i.e. I have been to hospital lots of times) and then examples of this category are also given (e.g. I broke my arm, I broke my leg, I had stitches in my knee) **only** the examples count (i.e. three) and not the category
5. If only a category is given without examples, then the category counts once
6. If a participant provide an overall category but not specific examples (e.g. I have enjoyed Christmases in the last ten years) then it counts only once regardless of the time frame
7. If a participant is specific about the number of times something positive/negative has occurred (e.g. I have tried to commit suicide three times), the specified number is taken into account and counted (i.e. three)

Appendix 7: Scoring criteria for memory/future thinking task

(continued)

Example:

Future thinking (positive condition)

Participants response	Description on scoring procedure	Rule
I expect to enjoy all my birthdays in the next few years	counts as 1 as only category is described	5
I am looking forward to going on holiday to America and Spain this summer	Counts as 2 as a category with two examples is described, therefore do not count the category but do count the examples	4

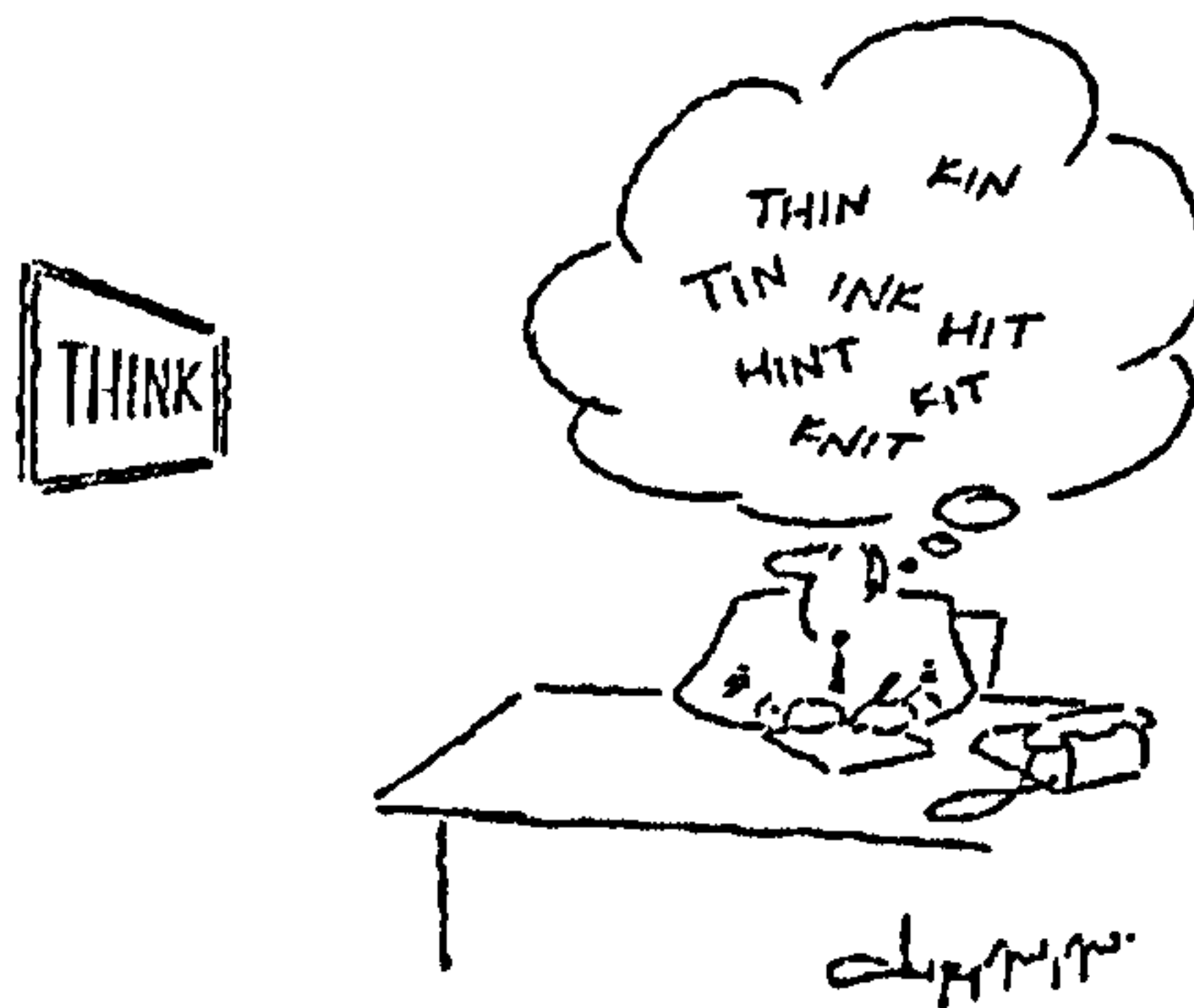
Total number of responses for Future Thinking/Positive = 3

Appendix 8: Invitation letter to participate in the study (Leigh House example)

Hampshire Partnership 
NHS Trust

Adolescent Psychiatric Unit
Leigh House Hospital
Aldersford Road
Winchester
Hampshire SO21 1HD

Direct Dial: 01962 825800
Fax No: 01962 825836



Dear

Re. Invitation to participate in a study looking at how adolescents think about the past and the future.

One of my colleagues is carrying out a research project with the support of Leigh House Hospital. Her name is Rachel Seymour and she is a Trainee Clinical Psychologist from the University of Southampton. As part of her project she would like to contact young people at Leigh House who have been experiencing specific mental health difficulties. She is particularly interested in how adolescents think about the past and the future.

Enclosed with this letter is an Information Sheet which explains more about the study. It is important for you to know that participation is voluntary and that you have the right to say no. Deciding not to take part in the study or withdrawing after agreeing to take part will not affect your treatment at Leigh House in any way. If you decide to take part your results will be confidential but anonymised group results will be made available to you if you are interested.

Take some time to think about whether you would like to take part in the study and discuss it with others if you wish. If you are interested in taking part or would like to ask Rachel some questions before deciding, return the completed Expression of Interest Form to a member of staff in the unit in the envelope provided. This will be passed on to Rachel and she will then contact you and arrange a time to meet at Leigh House to discuss what the study involves.

Thank you for taking the time to read this letter.

Yours sincerely

Dr Helen Miles

**Dr Helen Miles
Clinical Psychologist**

Enc Information Sheet
Expression of Interest Form

Invitation letter to adolescent at unit (version 2: 30.09.05)

REC reference number: 05/Q1702/95

Appendix 9: Adolescent participant information sheet – page 1 (Leigh House example)

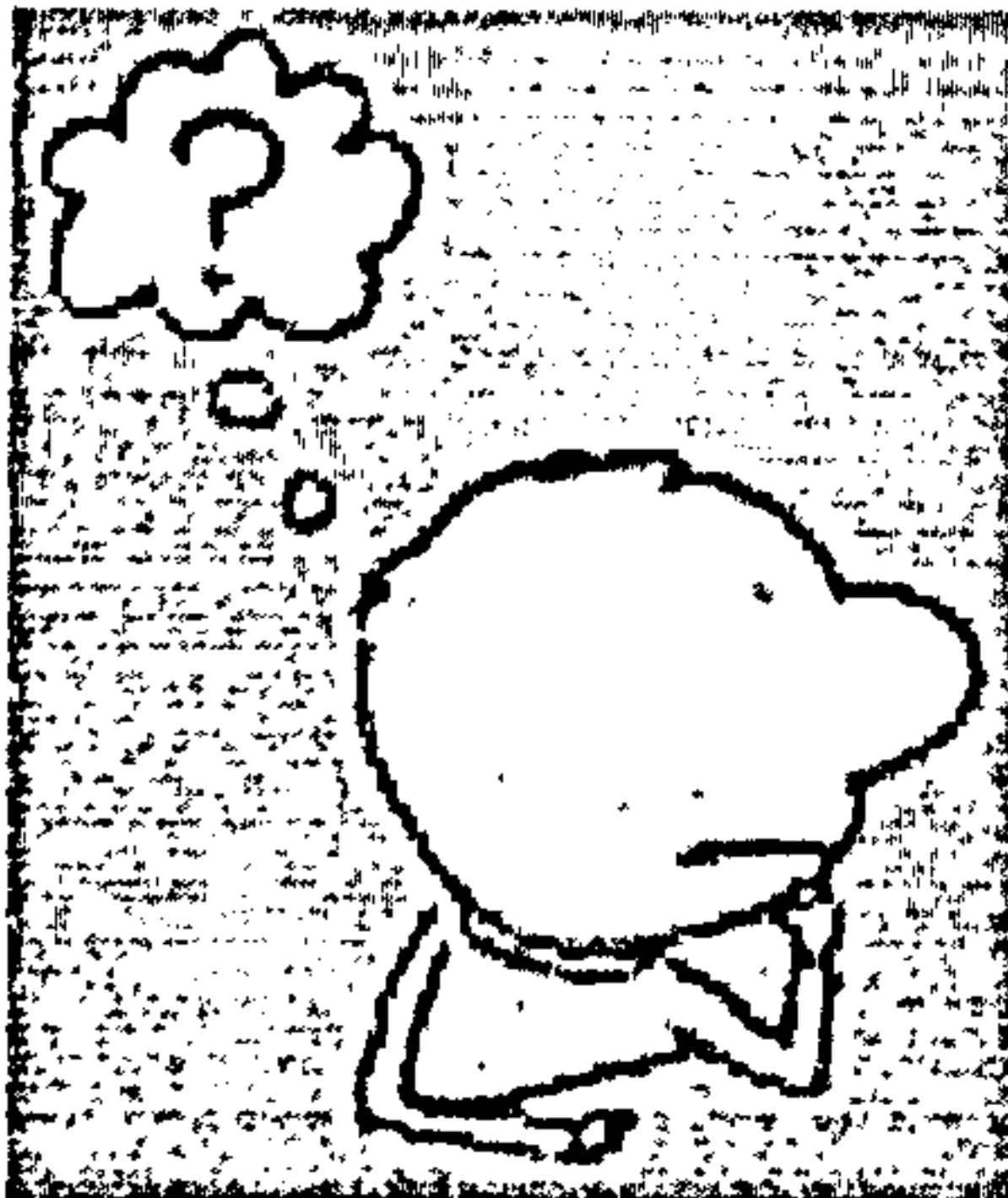


University
of Southampton

Hampshire Partnership 
NHS Trust

ADOLESCENT PARTICIPANT INFORMATION SHEET

STUDY TITLE: "THINKING ABOUT THE PAST AND THE FUTURE"



Would you like to take part in a clinical psychology research study?

This sheet will give you some information about the study.

If you are interested you can meet me and ask questions to help you decide whether you want to take part.

What is the study?

- The study will compare how young people with clinical depression think differently to young people without clinical depression.

Why me?

- Young people attending the adolescent unit who are experiencing depression are being invited to take part in the research.

Do I have to take part?

- You do not have to take part if you don't want to.

What will I be asked to do?

There will be a meeting arranged (with me, Rachel Seymour), which lasts about 1 hour, to:

- complete a brief computerised self-administered interview
- think of some experiences that you have enjoyed and not enjoyed in the past
- think of things that you are looking forward to and not looking forward to in the future
- complete five brief questionnaires

Will this affect me?

- Very occasionally, people can become upset when filling in questionnaires or thinking about issues related to the past or future.
- You can stop taking part in the study at any point.
- I will briefly tell you about what other research has found at the end of the session.
- I will also speak with your primary nurse if you are upset.

What are the benefits for me?

- This study might help us to develop better treatment approaches for young people experiencing clinical depression.

Will what I say be private?

- All the information that you give within the appointment will be private unless I feel that you or another person is at serious risk. If I become concerned that you are at serious risk, I will inform your primary nurse and the person whom you regularly see at the adolescent unit.

Please turn over ↪

Appendix 9: Adolescent participant information sheet – page 2 (Leigh House example)

Will taking part affect my treatment at the unit?

- Taking part (or not taking part) in the study will not affect the treatment that you currently receive at Leigh House.

I am interested but want to find out more about it – what do I do?

- If you are interested in taking part please complete the Expression of Interest form and I will arrange to meet with you so that you can ask me questions about the study.
- You can also contact me, Rachel Seymour (see contact details below).

What to do now?

- If you are interested in taking part please complete the Expression of Interest form and return it in the envelope provided to a member of staff at Leigh House.
- If you are interested, I will contact you to arrange a time to meet at Leigh House, this will allow you to ask me any questions before deciding whether you wish to take part.



How do I agree to take part in the study?

- Once you have met me and asked any questions, I will leave a consent form for you to sign if you wish to participate in the study. If you are under 16 years old, both you and a parent need to be happy for you to take part.
- If you are under 16 years old, I will provide a letter, an Information sheet and a consent form to your parents so that they understand what the study is about – they can also contact me if they wish to ask any questions.

THANK YOU



Contact for further information

If you have any questions about the research in the meantime, please contact:

Rachel Seymour
Trainee Clinical Psychologist
School of Psychology
University of Southampton
Highfield
Southampton
SO17 1BJ
☎: 023 8059 5321 Email: rs1503@soton.ac.uk

If you have any questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17, 1BJ. Telephone: (023) 8059 3995.

Appendix 10: Expression of interest form (Leigh House example)



EXPRESSION OF INTEREST FORM

Study title: "Thinking about the past and the future"

If you are interested in finding out more about this study and possibly taking part, please fill in this form and return it in the envelope to a member of staff at Leigh House.

The envelope will be passed on to me and I will contact you about taking part in the study.

Name:	First name	Family name/surname
Date of birth:	
Gender: <i>(please circle)</i>	Female	Male
The best description of your ethnic origin: <i>(please tick)</i>	<input type="checkbox"/> a. White <input type="checkbox"/> British <input type="checkbox"/> Irish <input type="checkbox"/> Any other White background <input type="checkbox"/> b. Mixed <input type="checkbox"/> White & Black Caribbean <input type="checkbox"/> White & Black African	<input type="checkbox"/> White & Asian <input type="checkbox"/> Any other mixed background <input type="checkbox"/> c. Asian or Asian British <input type="checkbox"/> Indian <input type="checkbox"/> Pakistani <input type="checkbox"/> Bangladeshi <input type="checkbox"/> Any other Asian background
Do you have any reading difficulties?: <i>(please circle)</i>	No / Yes (If yes, please say what these are)	

THANK YOU FOR YOUR HELP

Rachel Seymour
 (Trainee Clinical Psychologist)
 School of Psychology, University of Southampton, Highfield, Southampton SO17 1BJ

☎: 023 8059 5321
 Email: rs1503@soton.ac.uk

Appendix 11: Consent form for adolescents under 16 years old (Leigh House example)



Hampshire Partnership
NHS Trust



CONSENT FORM FOR ADOLESCENT

Title of project: "THINKING ABOUT THE PAST AND THE FUTURE"
Name of researcher: Rachel Seymour

Dear

Once you feel you understand what will take place in the study and wish to take part, please SIGN AND RETURN THE CONSENT FORM.

BOTH you *and* a parent/guardian need to be happy to give your permission, for you to be part of the study. Your parent will be sent a consent form.

Statement of Consent for the adolescent:

Please initial box

- | | |
|--|--------------------------|
| 1. I confirm that I have read the full adolescent participant information sheet dated (unit adolescent version) for the above study and have had the opportunity to ask questions. | <input type="checkbox"/> |
| 2. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving any reason, without my health care or legal rights being affected. I understand that data collected will be treated confidentially and that published results of this research will maintain my confidentiality. | <input type="checkbox"/> |
| 3. I agree to take part in the above study. | <input type="checkbox"/> |

Name of participant	Signature	Date
Name of person taking consent (if different from researcher)	Signature	Date
Researcher	Signature	Date

THANK YOU FOR YOUR HELP

1 for patient; 1 for patient's parent; 1 for researcher; 1 to be kept with unit notes

If you have any questions please contact me, Rachel Seymour, Trainee Clinical Psychologist, School of Psychology, University of Southampton, Highfield, Southampton, SO17 1BJ

Or phone me on: 023 80595321 or email me at: rs1503@soton.ac.uk

I understand that if I have any questions about my rights as a participant in this research, or if I feel that I have been placed at risk, I can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17, 1BJ. Telephone: (023) 8059 3995.

Appendix 12: Letter to parents about the study (Leigh House example)

Hampshire Partnership 

NHS Trust

Adolescent Psychiatric Unit
Leigh House Hospital
Airesford Road
Winchester
Hampshire SO21 1HD

Direct Dial 01962 825800
Fax No: 01962 825836

Dear

Re. Invitation to participate in a study looking at how adolescents think about the past and the future.

One of my colleagues is carrying out a research project with the support of Leigh House Hospital. Her name is Rachel Seymour and she is a Trainee Clinical Psychologist from the University of Southampton. As part of her project she would like to contact young people at Leigh House who have been experiencing mental health difficulties. She is particularly interested in how adolescents think about the past and the future.

We have written to your daughter/son about the study and s/he has expressed an interest in taking part in the study. Given your daughter's/son's interest we would also like to provide information about the study for you because **participation in the study requires signed consent from both your daughter/son and you as their parent.**

Enclosed with this letter is an information sheet which explains more about the study and a consent form. It is important for you to know that your daughter/son's participation is voluntary and that you and/or s/he have the right to say no. Your daughter/son's treatment at Leigh House will not be affected in any way if you decide not to give consent or withdraw your consent after agreeing that you are happy for her/him to take part. If your daughter/son takes part in the study her/his results will be confidential but anonymised group results will be made available if s/he is interested.

Take some time to think about whether you would like your daughter/son to take part in the research, discuss it with others if you wish or contact Rachel (contact details are on the Information sheet) if you have any questions you would like to ask her.

As mentioned above, if your daughter/son would like to take part in the study, both you and your daughter/son will need to agree that you are both happy for her/him to take part. S/he will need to return her/his signed consent form and you will be required to return yours to a member of staff in the unit in the envelope provided. This will be passed on to Rachel and she will arrange a time to meet your daughter/son at Leigh House.

Thank you for taking the time to read this letter.

Yours sincerely



Dr Helen Miles (Clinical Psychologist)

Enc Information sheet
Consent form

Invitation letter to parent at unit (version 2: 30 09.05)

REC reference number: 05/Q1702/95

Appendix 13: Information sheet for parents–page 1 (Leigh House example)



University
of Southampton

Hampshire Partnership
NHS Trust



INFORMATION SHEET FOR PARENTS

STUDY TITLE: "THINKING ABOUT THE PAST AND THE FUTURE"

Your son/daughter has expressed an interest in taking part in this research project. Before you decide whether you are happy for them to take part in the study it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. Ask me if there is anything that is not clear or if you would like more information. Thank you for reading this.

What is the purpose of the study?

We are setting up a research project studying how young people experiencing clinical depression think differently to non-depressed young people. The research aims to improve our understanding about how young people think about the past and the future.

Why has my son/daughter been invited to take part?

I am carrying out a study at Leigh House Adolescent Unit and some schools in the region. Young people attending the adolescent unit who are experiencing depression were invited to take part in the research. Your son/daughter has expressed an interest in participating in the research.

Does my son/daughter have to take part?

We hope that your son/daughter will feel able to help us with this research, but they should not take part in the study if they do not want to. Your son/daughter may also withdraw from the study at any time, without giving a reason and this will not affect their treatment at the unit.

What will my son/daughter be asked to do?

If your son/daughter decides to take part in the study he/she will:

- complete a brief computerised self-administered interview
- be asked to think of some experiences that he/she has enjoyed (over three different time periods in the past) and not enjoyed (over three different time periods in the past)
- be asked to think of things that he/she is looking forward to (over three different time periods in the future) or not looking forward to (over three different time periods in the future)
- complete five brief questionnaires

I will stay with your son/daughter the whole time that he/she is answering the questions. The study tasks should take approximately one hour.

What are the possible risks of taking part?

Very occasionally, people can become upset when filling in questionnaires and thinking about issues related to the past or future. Your son/daughter will have the right to stop participating in the research at any point. In addition they will have the opportunity to do some relaxation exercises at the end of the session if they want to. I will debrief your son/daughter immediately at the end of the session. I will also speak with your son or daughter's primary nurse if they are upset.

What are the benefits of my son/daughter taking part?

We hope that the research will give people a better understanding of how young people think about the past and the future and how this affects the way they feel. This might help us to develop better treatment approaches in the future.

Will my son/daughter's participation in the study be kept confidential?

Only the researchers will see the questionnaires that your son/daughter fills out. All the information that your son/daughter gives within the interview will be treated as confidential unless I feel that your child or another person is at risk. If I become concerned that your son or daughter is at serious risk, I will inform the person whom your son or daughter regularly sees at the unit and follow the unit's risk protocol.

Please turn over ↪

Appendix 13: Information sheet for parents–page 2 (Leigh House example)

What will happen to the results of this study?

The information provided by everyone who takes part will contribute to a report but this will contain no details to allow any young person to be identified. A summary of the results will be made available on request.

Will taking part affect my son/daughter's treatment?

Taking part in the study will not affect the treatment that your son/daughter is currently receiving. Further, should your son/daughter decide not to take part their treatment will not be affected by this decision.

Who is organising and funding the research?

The Doctoral Programme in Clinical Psychology at the University of Southampton.

Who has reviewed the study?

The School of Psychology, University of Southampton Ethics Committee, and Southampton and North Mid Hampshire Local NHS Research Ethics Committee.

Where can you get more information?

If you would like any further information, for example seeing the questionnaires that your son or daughter will be completing or any further issues about the study, please do not hesitate to contact me, Rachel Seymour (see contact details below).

How do I give my consent for my son/daughter to take part in the study?

After your daughter/son expressed an interest in participating in the study I met with her/him to answer any questions s/he had. I also gave her/him a Consent form and agreed to send you this Information sheet and a Consent form. In order for your daughter/son to take part in the study both of you need to be happy for your daughter/son to be permitted to participate.

What to do now?

If both you and your son/daughter agree to them taking part in the research, please sign the Consent form and return it to Leigh House in the envelope provided. You will be given a copy of your signed Consent form to keep. I will contact your son or daughter to arrange a date and time to come to the unit for the research interview.

Contact for further information

If you have any questions or wish to ask for any further information please contact:

Rachel Seymour, PhD
Trainee Clinical Psychologist
School of Psychology
University of Southampton
Highfield
Southampton, SO17 1BJ

☎: 023 8059 5321 Email: rs1503@soton.ac.uk

THANK YOU

*If you have any questions about your rights as a participant in this research, or if you feel that you have been placed at risk, you can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17, 1BJ.
Telephone: (023) 8059 3995.*

Appendix 14: Consent form for parents of adolescents under 16 years old (Leigh House example)



University of Southampton

Hampshire Partnership



NHS Trust

CONSENT FORM FOR PARENT

Title of project: "THINKING ABOUT THE PAST AND THE FUTURE"

Name of researcher: Rachel Seymour

Dear parent/guardian

Once you feel you understand what will take place in the study and wish to take part, please SIGN AND RETURN THE CONSENT FORM.

BOTH you and your daughter/son need to be happy to give your permission, for your daughter/son to be part of the study. Your daughter/son has been given their own consent form.

Statement of Consent for the parent or guardian:

Please read the information sheet for parents in relation to this consent form.

Please initial box

I confirm that I have read the information sheet for parents dated (unit parent version ...) for the above study, and have had the opportunity to ask questions.

I understand that my son/daughter's participation is voluntary and that I am free to withdraw my consent at any time without giving a reason, without my son/daughter's health care or legal rights being affected. I understand that data collected will be treated confidentially and that published results of this research will maintain my son/daughter's confidentiality.

I agree to allow my son/daughter (*print son/daughter's name*) to participate in the study.

Name of parent/guardian

Signature

Date

Name of person taking consent
(if different from researcher)

Signature

Date

Researcher

Signature

Date

THANK YOU FOR YOUR HELP

1 for patient; 1 for patient's parent; 1 for researcher; 1 to be kept with unit notes

If you have any questions please contact me, Rachel Seymour, Trainee Clinical Psychologist, School of Psychology, University of Southampton, Highfield, Southampton, SO17 1BJ

Or phone me on: 023 80595321 or email me at: rs1503@soton.ac.uk

I understand that if I have any questions about my rights as a participant in this research, or if I feel that I have been placed at risk, I can contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17, 1BJ. Telephone: (023) 8059 3995.

Appendix 15: Debriefing statement for participant (Clinical sample)



Hampshire Partnership
NHS Trust



Debriefing Statement

"THINKING ABOUT THE PAST AND THE FUTURE"

Name of researcher: Rachel Seymour

The purpose of this research was to investigate thoughts about the past and future in order to see whether young people experiencing depression think less positively and more negatively, and whether this plays a role in keeping them depressed. Your participation may help further our understanding about what contributes to depression and could help to develop treatments. Once again results of this study will not include your name or any other identifying characteristics.

1. I would like a copy of this debriefing sheet (*Please circle yes or no*).

YES NO

2. I would like a summary of the research findings sent to me once the research is completed (*Please circle yes or no*).

YES* NO

*If you would like a summary of the research findings, please complete the following details so I can send you the summary:

Name (Please print):

Address:

3. I have received the debriefing and £10 voucher as a thank you for taking part (*Please sign*): Date:

Thank you for your participation in this research study

If you have any further questions, please do not hesitate to contact me, Rachel Seymour at the:

School of Psychology
University of Southampton
Highfield
Southampton
SO17 1BJ

☎: 023 8059 5321 Email: rs1503@soton.ac.uk

If you have any questions about your rights as a participant in this research, or you feel that you have been placed at risk, you may contact the Chair of the Ethics Committee, Department of Psychology, University of Southampton, Southampton, SO17 1BJ. Telephone: (023) 8059 3995

Appendix 16: Information for non-clinical participants regarding potential sources of support



University
of Southampton

Hampshire Partnership
NHS Trust



Debriefing Information for Non-clinical Research Participants

“THINKING ABOUT THE PAST AND THE FUTURE”

Name of researcher: Rachel Seymour

Contact details:

School of Psychology
University of Southampton
Highfield
Southampton
SO17 1BJ
☎: 023 80595321
Email: rs1503@soton.ac.uk

If you are experiencing regular symptoms of depression or anxiety and if these symptoms are distressing you or interfering with your life, you may wish to access further information, advice and/or support from the following sources:

1. You could contact your GP and ask to be referred on to appropriate services.
2. You may wish to contact your school nurse or college counsellor about your concerns and he/she will talk with you and go through the options available to you.
3. If you are already receiving help or have a named therapist you should contact them or discuss this with them at your next meeting.
4. The Samaritans are available 24 hours per day on ☎: 08457 90 90 90.
5. You could contact 'Off The Record' (Portsmouth). 250 Fratton Road Portsmouth, PO1 5HH. Office ☎: 023 9278 5111 Client ☎: 023 9281 5322. 'Off The Record' is a free, confidential support service for 11-25's offering counselling, information and befriending to any young person in difficulty or needing help with any issue (relationships, stress, school/work, homelessness, abuse, depression etc).