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Rumination, Goal Linking, Daily Hassles and Life Events in Major Depression

Emily McIntosh

Department of Clinical & Counselling Psychology

Monklands Hospital

NHS Lanarkshire

David Gillanders

University of Edinburgh,

Section of Clinical & Health Psychology

Sheelagh Rodgers

Department of Psychological Services

New Craigs Hospital

NHS Highland

Corresponding Author: Dr. David Gillanders

University of Edinburgh, Section of Clinical & Health Psychology, School of Health in Social Science,

Medical School, Teviot Place, Edinburgh, United Kingdom, EH8 9AG.

Tel: +44131 6513946 Fax: +441316513971 email: dgilland@staffmail.ed.ac.uk

Abstract

Background: Rumination in response to stressful events and depressed mood leads to harmful outcomes. In addition to intra-psychic processes, depression is also associated with daily hassles and major life events. Self-regulatory beliefs such as goal linking could mediate the link between life events, daily hassles, rumination and major depression.

Method: The relationships between depressed mood, rumination, goal linking, life events and daily hassles was investigated in a between groups design. Standardised questionnaire measures of these constructs were used to compare depressed participants with a group of people experiencing psychological distress but not major depression and a never depressed group.

Results: Participants with major depression experienced similar numbers of life events as the other groups, though the impact of these was greater for the depressed group than either the psychological distress group or the healthy controls. Depressed participants also experienced greater daily hassles than either of the other two groups. Depressed participants were also higher in goal linking and rumination. Regression analysis demonstrated that neither life events nor goal linking predict rumination or depressed mood. Rumination appears to moderate the relationship between daily hassles and depressed mood.

Discussion: Theoretical and clinical implications are discussed.

Introduction

In recent years there has been increasing interest in empirical research and theories of rumination, in an effort to improve our understanding of the mechanisms of onset, maintenance and recurrence of depression (Papageorgiou & Wells, 2004). Rumination is referred to as persistent, recursive self-focused attention, and is seen as a common response to negative mood and a feature of major depression (Nolen-Hoeksema, 1991; Papageorgiou & Wells, 2004).

Self-regulatory theories propose that people engage in rumination in an attempt to make progress towards important goals (Martin and Tesser, 1989; 1996). They suggest that rumination keeps information related to the goal in memory for longer and note that while rumination may ultimately not be beneficial or result in goal progress, this is the intended function.

Beyond the impact of intra-psychic processes, such as rumination and self-regulation, the onset and exacerbation of depression has been associated with external factors including daily hassles and more major life events. Daily hassles can be defined as everyday irritants and stressors that are experienced as inconvenient or harassing (Kohn & Macdonald, 1992; Oxford University Press: New Oxford Dictionary of English, 2001). Examples include time pressure, problems at work and being taken advantage of by others. It is well established that hassles and stressful events can have a detrimental impact both on people's physical and mental health (e.g. Kohn et al., 1994a; Nakano, 1989; Kanner et al., 1981). though this finding does not always emerge (Baer et al., 1987).

Perhaps somewhat counter-intuitively, some studies find that daily hassles are more strongly related to wellbeing than major life events (Kanner et al., 1981; Holahan & Holahan, 1987; Russell & Davey, 1993). Some authors suggest that the impact of major life events on wellbeing is mediated through daily hassles, for example due to disruption of social relationships

and routines following a life event (Eckenrode, 1984; Kanner et al., 1981; Wagner et al 1988), though other studies suggest that life events and daily hassles predict health related outcomes independently (Chamberlain & Zika, 1990).

In contrast to daily hassles, life events involve greater change, adjustment or disruption. In one of the earliest measures of life events, the Schedule of Recent Experiences (SRE: Holmes & Rahe, 1967) life events are referred to as any event or occurrence that involves significant change and readjustment, the significance of events being based on people's subjective judgements (Holmes & Rahe, 1967; Harris, 1997). Examples include an estrangement, new child or bereavement. Major life events are frequently considered as one factor associated with the onset of psychological distress, including depression (Brown et al, 1978; 1995).

Significant contributions to the literature on daily hassles, rumination and depression come from the Goal Progress Theory of Rumination (Martin & Tesser, 1989, 1996; Martin, Tesser & McIntosh, 1993). Here, rumination is viewed as the tendency to think repeatedly about important unattained goals, in an attempt to make progress towards the goal (e.g. by generating alternative paths to the goal, enhancing the saliency of the goal thus increasing motivation). The authors acknowledge that while rumination may serve a self-regulatory function, it does not always result in goal progress, or in the goal being relinquished.

These self regulatory theories also propose that goals are structured in hierarchies, such that people pursue lower order goals (e.g. losing weight) to reach important higher order goals (e.g. being happy). While some hierarchies are inevitable (e.g. must unlock a door before opening it), others are very subjective (e.g. the achievement of status or wealth leading to happiness). An important concept is goal linking, which describes the tendency to link the achievement or failure of low order goals (e.g. going on a date) to the achievement or failure of higher order goals (being loved). People differ in their tendency to goal link and linkers maintain that low level goals are necessary in the attainment of higher order goals. The

model suggests that linking causes people to ruminate in response to threats to low level goals as the threat is perceived as an obstacle to higher order goals. Rumination is therefore thought to mediate the relationship between linking and negative affect.

Supportive evidence for components of the Goal Progress Model of Rumination is provided by a range of studies (Martin et al 2004; Martin, Tesser & McIntosh 1993; McIntosh and Martin, 1992; Koole et al 1999). Martin et. al. (1993) and Koole et. al. (1999) report findings that are consistent with hierarchy assumptions and the proposal that rumination is a function of unattained goals. McIntosh & Martin (1992), found that participants with a greater tendency to goal link reported greater rumination, negative affect and unhappiness and that rumination mediated the relationships between linking and unhappiness / negative affect.

Several key studies draw together what is known about goal linking, rumination, daily hassles and life events. McIntosh et al (1995; 1997) suggest that one reason why everyday hassles can lead to depression is related to goal linking and subjective hierarchies. Specifically, people with a tendency to goal link, may perceive small everyday hassles as threats to higher order goals. They illustrate, for example, that someone who goal links may interpret a small argument with a friend as a threat to the friendship as a whole, or to their social life generally and the higher order goal of being accepted. According to this hypothesis, people who goal link will be more vulnerable to longer term negative effects on mood and depression, when faced with every day hassles.

McIntosh, Harlow and Martin (1995) examined the impact of goal linking in undergraduate students in relation to their experience of daily hassles. They found that those who showed a tendency to greater goal linking experienced a greater impact of hassles on their mood and their experience of symptoms of physical ill health. Non-linkers' mood and physical symptoms were unrelated to hassles. Replicating previous results (McIntosh & Martin 1992),

the findings provide further support of a relationship between goal linking, rumination and lowered mood in an undergraduate population.

McIntosh, Martin and Jones (1997) studied the impact of goal linking and reflecting on life events on undergraduate student's ratings of their long term happiness. They demonstrated that when asked to rate their long term happiness, people who goal link are more influenced by thinking about current life events than people who do not goal link. Non linkers' ratings of happiness were unrelated to thinking about current life events. As with daily hassles, people who show a tendency to goal link may be more vulnerable to perceive life events as a threat to higher order goals, to their happiness and as previously discussed may experience greater rumination and depression.

A number of limitations within these literatures should be acknowledged. Studies on goal linking are limited by their reliance on non-clinical samples. Likewise, within the rumination literature many involve participants who are not clinically depressed, though this is not always the case (e.g. Nolen-Hoeksema, 2000). In both the goal linking and rumination literature, limits are placed on the extent to which findings can be generalised to clinical populations. Furthermore, many of the goal-linking studies are correlational allowing only tentative conclusions to be drawn about the direction of relationships.

Despite these limits, the studies outlined provide evidence supportive of a role of goal linking in rumination and negative affect. While McIntosh et al (1992; 1995; 1997; 2001) have explored relationships between goal linking, daily hassles, life events, rumination and depression within undergraduate student populations, it seems that to date these relationships have not been studied within clinical populations.

In summary: a body of research demonstrates that rumination in response to stressful events and depressed mood is associated with a range of harmful outcomes. Beyond intra-psychic

processes, onset and maintenance of depression has been associated with external factors including daily hassles and major life events (Kanner et al, 1981; Russell & Davey, 1993). Within the Goal Progress theory of Rumination (Martin & Tesser, 1989; Martin et al 1993), people with a tendency to goal link are more vulnerable to rumination when lower order goals are threatened, and that rumination is associated with low mood. Rumination is thought to mediate between goal linking and negative affect. Studies exploring the relationship between goal linking, rumination, daily hassles and life events (McIntosh et al 1995; 1997; 2001) find students with a tendency to goal link show a greater impact of hassles and life events on their mood, however to date these relationships have not been widely explored within a clinical population.

These relationships were examined in a sample comprising of three groups: participants with major depression, participants experiencing psychological distress, but without current major depression and a group of participants who had never experienced major depression. We predicted that participants with major depression would show higher scores on measures of goal linking and rumination than both of the other groups. We also predicted that major life events and daily hassles would be similar between the two clinical groups and higher than the healthy controls. Finally, we predicted that rumination would moderate the relationship between goal linking, daily hassles, life events and symptoms of depression.

Method

Design

A between subjects design was used in which the responses of three independent groups were compared. Group 1 was a sample of people experiencing major depression; group 2 a sample of people experiencing psychological distress but not major depression and group 3 a sample of healthy adults with no history of psychological disorder. These groups were administered

five self-report questionnaires measuring goal linking, rumination, daily hassles, life events and mood.

Participants

Inclusion and exclusion criteria

Participants in groups 1 & 2 were recruited from Primary Care Adult Psychological Services in NHS Highland, a relatively remote and rural part of Scotland. All participants were adults aged 18 to 65 years. Participants were excluded from the study if they lacked English comprehension; had known current co-morbid drug or alcohol problems; had known organic pathology such as dementia or traumatic brain injury; learning disability; or formal diagnosis of personality disorder or bipolar disorder. 230 people were identified from the waiting list of adult psychology services and were invited to participate. 55 individuals (24%) responded and provided informed consent. It is not known why 175 individuals did not answer the invite to participate in the study. They were individuals on a waiting list for psychological services and a proportion of them may have recovered, moved house, or been reluctant to take part for other reasons. Of the 55 people who did respond, 47 individuals met criteria for inclusion in the study, 22 in the depressed group, 25 in the psychological distress group.

Participants in group 1 (depression group) were required to meet the diagnostic criteria for a current major depressive episode as determined using the mood disorders section of the Structured Clinical Interview for DSM-IV (SCID IV: First, Spitzer, Gibbon and Williams 1996). To retain distinct groups, adults experiencing low mood but not major depression were excluded from this group.

Participants in group 2 (psychological distress) were adults who had been referred to psychological services for emotional difficulties (e.g. anxiety, anger) where depression was not the primary complaint and who did not currently meet DSM-IV criteria for major depression. It is of course possible that individuals in this group may have experienced major

depression at some point in the past and this is acknowledged as a limitation of the study. In addition, the mean CES-D score of the psychological distress group is just below the accepted cut off suggestive of clinical depression (16). The CES-D data combined with the SCID IV interviews show that this group experiences some associated symptoms, though these do not meet criteria for major depression.

Participants in group 3 (non-clinical control) were adults who were not currently experiencing major depression and had no history of major depression as determined from the screening SCID-IV interview. Control participants were not currently experiencing any other form of emotional distress, and were a convenience sample. 25 control participants were invited to attend, 23 individuals agreed to participate. Demographic information on the study participants is presented in table 1.

Insert Table 1 Here

Materials

Mood Component of the Structured Clinical Interview for DSM-IV (SCID IV: First, Spitzer, Gibbon & Williams, 1996)

The mood disorder section of the SCID IV was used to confirm the presence or absence of major depression. The SCID IV is a structured interview schedule that has been found to have good reliability and validity in the diagnosis of Axis I disorders (Spitzer, Williams, Gibbon & First, 1992). The whole SCID interview was not administered in order to reduce demands on participants. 25 % of interviews were tape recorded and reviewed blind by a qualified clinical psychologist with experience of using the SCID IV (DG). There was 100%

agreement regarding the presence or absence of major depression between the first and second authors.

The Linking Inventory (McIntosh and Martin, 1992)

The Linking Inventory is a 13 item, forced choice, questionnaire that measures the extent to which participants link lower order to higher order goals, for instance, “I am only happy (higher order goal) when I am at my ideal weight (lower order goal).” The item scores range from 0-13 with higher scores representing greater linking. The authors report that the linking scale possesses good internal reliability ($\alpha=0.73$) and test-retest reliability ($r=0.78$) (McIntosh, Martin and Jones 1997).

The Short Response Styles Questionnaire (Nolen-Hoeksema & Jackson, 2001)

The Short Response Style Questionnaire consists of 10 items drawn from the original Response Style Questionnaire (RSQ, Nolen-Hoeksema & Morrow 1991). The SRSQ measures participants' tendency to adopt a ruminative self-focus in response to depressed mood. Total scores range from 10 to 40 with higher scores representing more frequent rumination.

The Survey of Recent Life Experiences (SRLE Kohn & MacDonald, 1992)

The SRLE is a self-report measure of daily hassles in adults. The condensed scale consists of 41 items that relate to a variety of daily hassles. Participants indicate the extent to which they have experienced each hassle over the past month on a four-point scale. Total scores range from 41-164 with higher scores representing greater experience of everyday hassles. The authors report that the Short Form SRLE demonstrates good reliability ($\alpha=0.90$) and adequate validity via correlating highly ($r = 0.55, p<0.01$), with other relevant measures such as the Perceived Stress Scale.

The condensed version of the Social Readjustment Rating Scale (Life Changes List) (SRRS Holmes & Rahe 1967)

The SRRS is a condensed version of the life change list developed by Holmes and Rahe (1967). The list is comprised of 14 serious life changes and includes major changes in personal and family relationships, work, residential and financial situation. Participants were asked to indicate if any of the listed life events had occurred during the last two years. Scaled scores were derived by summing the weighted values assigned to each item on the original life change list (Holmes and Rahe 1967). Participants then rated their subjective experience of the impact of each event they endorsed on a five-point rating scale from “1= affected me in a very positive way” to “5=affected me in a very negative way”. These supplementary questions have been used in a number of recent studies using the SRRS, with the aim of reflecting the significance of life events to the individual (Theorell et al 1999; Bergh, Baigi, Fridlund and Marklund 2005).

Center for Epidemiological Studies Depression Scale (CES-D, Radloff 1977)

To assess current level of depressive symptomatology, the Center for Epidemiological Studies Depression Scale was employed. The CES-D was developed for assessing depression in the general population, and thus felt to be a sensitive measure of depression among both control and clinical sample participants. The CES-D contains 20 items with an emphasis on the affective symptoms of depression. Total scores range from 0 to 60, with higher scores indicating higher depressive symptoms. The CES-D is widely used in both research and clinical settings (Thase and Lang 2004).

Procedure

The researcher (EM) met with all participants individually. An interview format was used to collect demographic information, then the mood disorders subsection of the SCID – IV was administered. Participants were then supported in completing the questionnaires. The order of completion of the scales was the Linking Inventory, the Ruminative Response Scale, the Survey of Recent Life Experiences, the Social Readjustment Rating Scale and the CES-D.

Following completion of the questionnaires each participant was thanked for their participation and given a full explanation of the study's hypotheses. Nobody found participation to be distressing and all responded positively to the study's aims, which had remained obscured. The procedure took an average of 50 minutes.

Analytic Plan

Data was analysed using SPSS for Windows (version 14). In the first stage of analysis, the primary hypotheses were explored using a series of one-way analysis of variance (ANOVA). This enabled detection of any significant group differences across the main dependent variables: linking; rumination, daily hassles, life events and mood. Group differences were then investigated using Scheffe post hoc comparisons.

In the second stage of analysis, a series of multiple regressions using the entire sample were used to conduct a path analysis, as described by Bramwell (1996). The path analysis allowed a test of the relationships between goal linking, hassles, life events, rumination and symptoms of depression, including the potential moderating role of rumination.

Results

Hypotheses relating to different levels of daily hassles, life events, rumination and goal linking as a function of depression status were first explored using a series of one-way ANOVA, with three levels of the independent variable; group. Table 2 shows the mean scores and standard deviations found on each measure, as well as the F statistics and p values associated with these. Prior to running the ANOVA analysis, histograms, box plots and distribution statistics for each dependent variable were examined. All variables were normally distributed. Variance was sufficiently similar across groups to meet the assumptions for parametric analysis.

Insert Table 2 Here

Post hoc comparisons revealed that all three groups differed significantly from each other in the expected direction in terms of severity of depressive symptoms.

Life Events and Daily Hassles

It was hypothesised that people with clinical depression would experience similar levels of daily hassles and life events to a comparison group of people with psychological distress and that people with no history of depression would experience fewer daily hassles and life events than the clinical groups.

One way ANOVA found no significant group difference for total number of life events experienced in the previous two years ($F(2, 67) = 2.848; p=0.07$). Significant differences between groups were detected however on life events scaled scores ($F(2, 67) = 3.932; p=0.024$) and total impact of life events scores ($F(2, 67) = 6.883; p=0.002$).

Post hoc comparisons showed that life events scaled scores were higher in the depression group than the never depressed control group (effect size $d=0.82$; mean diff 55.35, SE 20.81; $p=0.029$). No other group differences reached significance. Similar results were obtained for measures of the impact of life events. Post hoc comparisons showed significantly higher impact scores in the depression group compared with never depressed controls (effect size $d=1.02$; mean diff 7.74, SE 2.11; $p=0.001$). Again, no other group differences reached significance.

Collectively the results suggest that while people experiencing major depression experienced a similar number of life events to the other groups, the degree of adjustment required (scaled

score) and the impact of those life events were significantly greater for those with major depression than those with no history of major depression. No significant difference was found on number, impact or scaled scores between groups 1 and 2 or groups 2 and 3.

For total daily hassles experienced in the preceding month significant differences were detected between some groups but not all. The total extent of daily hassles experienced in the depression group was significantly higher than in both the psychological distress group (effect size $d=1.09$; mean diff 18.55, SE 4.62; $p<0.001$) and the never depressed group (effect size $d=1.54$; mean diff 24.11, SE 4.71; $p<0.001$). The mean hassles total for the psychological distress group was only slightly higher than for the never depressed group and this difference was non-significant (effect size $d=0.38$; mean diff 5.56, SE 4.57; $p=0.683$). The depression group thus experienced significantly greater daily hassles than the other groups, while there was no significant difference in the extent of hassles experienced by people with psychological distress and those with no history of depression. This was contrary to our hypotheses, in that we expected the clinical groups to be more similar. This result suggests that major depression is associated with more daily hassles than psychological distress other than major depression.

Rumination and Goal Linking

It was hypothesised that people with clinical depression would demonstrate a greater tendency to goal link and greater rumination than the comparison clinical group of people with other psychological distress and a non clinical control group. For rumination, post hoc comparisons revealed significant differences between all three groups. Rumination (SRSQ) scores for the depression group were significantly higher than for the psychological distress group (effect size $d=1.69$; mean diff 8.21, SE 1.42; $p<0.001$) and the never depressed control group (effect size $d=2.68$; mean diff 12.02, SE 1.45; $p<0.001$). Rumination scores for the psychological distress group were significantly higher than the never depressed control group (effect size $d=0.75$; mean diff 3.80, SE 1.41; $p=0.026$). Thus, as predicted, the three groups

differed significantly on rumination with the depressed group showing highest rumination, the never depressed controls least rumination and the psychological distress group falling in the middle. This result is interpreted as supporting the hypothesis that rumination would be most strongly related to the presence of depression, rather than rumination being a response to general emotional problems, though it should be noted that the presence of psychological distress does lead people to ruminate more than those who do not report psychological difficulties.

For goal linking, post hoc comparisons found significant differences between some groups but not all. Goal linking scores in the depression group were significantly higher than in the psychological distress group (effect size $d=0.71$; mean diff 2.06, SE 0.83; $p=0.047$) and never depressed control group (effect size $d=0.97$; mean diff 2.06, SE 0.83; $p=0.005$). There was no significant difference on linking between the psychological distress and never depressed control groups (effect size $d=0.26$; mean diff 0.71, SE 0.81; $p=1.00$).

The results are consistent with the hypothesis that people with clinical depression demonstrated a greater tendency to goal link than participants with psychological distress other than major depression. The finding that people with no history of clinical depression have similar tendencies to goal link as those with other psychological difficulties, and that this tendency is lower for both of these groups than for the depressed group suggests that goal linking is more specifically associated with the presence of depression. It is of note that while the majority of differences explored above are large and reach significance, effect sizes indicate that those for rumination are greater than goal linking.

Relationships between life events, goal linking, daily hassles, rumination and depression

To explore more fully the relationships between the variables, a path analysis was conducted, using the multiple regression method suggested by Bramwell (1996). This also allowed a test

of the hypothesis that rumination moderates the relationship between depression and life events, goal linking and daily hassles. The resulting path model can be seen in figure 1.

Insert Figure 1 Here

In the path model, the coefficients on the paths represent the standardised Beta coefficients for that node. This represents the strength of relationship between predictor and predicted variable. The strength of indirect pathways is derived by multiplying the coefficients along each path, passing through each node only once. The most noteworthy feature of the path model is the final error term for prediction of depression from the whole model, ($1-R^2 = 0.3$). This means that 70% of the variance in depression symptoms is accounted for by the variables included in the model. Secondly, a comparison of the direct paths in the model reveal that rumination is a very strong direct predictor of depressive symptoms ($\beta = .62$, $p < .001$). Furthermore, goal linking and life events both significantly predict daily hassles, though these variables do not significantly predict rumination. Finally, the direct relationships between goal linking and life events and depression are not significant.

Exploring the strength of indirect paths reveals that only one path remains significant; the path from daily hassles, through rumination to depression ($.58 \times .62 = 0.35$; $p < .01$). It is of note that the direct pathway from hassles to depression, whilst still significant, is slightly less strong ($\beta = .25$, $p < .01$). This suggests that the presence of rumination moderates the impact of daily hassles upon depression. Daily hassles are also very strongly predictive of rumination ($\beta = .58$, $p < .001$).

Overall, the path model suggests that goal linking and life events do show a significant association with daily hassles. The impact of daily hassles upon depression severity is

moderated by the presence of rumination. These are of course, statistical associations and a design such as this can not infer causality.

Discussion

This study explored the relationships between rumination, goal linking, daily hassles and major life events in people with major depression, other psychological distress or no history of psychological disorder.

We found that while rumination does appear to be a feature of general psychological problems, it appears to be most strongly associated with the presence of depression and depressive symptoms. Rumination appears to be more associated with daily hassles than it is to major life events, people with major depression also appear to experience more daily hassles than either people with other psychological distress, or adults without history of psychological difficulties, suggesting perhaps that the presence of depression brings with it additional problems in living.

Depression is associated with a greater degree of adjustment required to life events and those life events having greater impact than similar numbers of life events for those who have no history of difficulty. This may reflect the nature of these life events (i.e. the group who become depressed may have experienced more severe life events than the other groups) or indeed it may be that the greater impact and degree of adjustment required comes about due to the fact that those with depression may ruminate on these life events and their consequences to a greater degree than the other groups. Further research employing prospective longitudinal designs, diary recordings of life events, daily hassles, rumination and fluctuations in mood would be required to definitively reveal whether this is the case. Such research would be complex, costly and would potentially introduce ethical issues regarding long term follow up of people vulnerable to depression without offering treatment. The current study is limited in its ability to specify the casual relationships between the constructs, though with appropriate cautions the relationships we have described are suggested.

An interesting finding was that participants with major depression showed more evidence of goal linking than either of the other two groups and that the psychological

distress group showed similar levels of goal linking to the healthy controls. It is possible that individuals show more evidence of goal linking under circumstances in which the presence of more severe psychological disturbance actually does lead to difficulty obtaining lower order goals. The limitations of the current study with regards to sampling are discussed further below, though this finding might be due to the psychological distress group being simply less disabled by psychological symptoms. Without having measured participant's ability to actually meet important life goals we can not answer this definitively. Future studies would be improved by examining goal hierarchies under conditions where degree of goal threat could be manipulated.

The current study chose to investigate only one type of meta-belief relating to rumination and mood; namely goal linking. This strategy was chosen due to the constructs' previous significant findings within undergraduate populations. In addition, focussing on only one type of meta belief reduced the response burden on participants. It is possible however that other meta-beliefs may be more relevant in understanding why people ruminate than the goal hierarchy beliefs investigated here. In hindsight, administering the Positive Beliefs about Rumination Questionnaire (Papageorgiou & Wells, 2001b) would have allowed us to examine a broader sample of relevant meta-beliefs, with only limited additional response burden. Future studies would clarify if the same relationships discovered here apply to other meta-beliefs about rumination and depression and could use a similar design to that described here.

Without such a study we can not fully describe the relationship between self knowledge and the initiation of processes such as rumination, though in the current study the data points to rumination being less determined by goal hierarchies than being a response to daily hassles. That this is not mediated by goal beliefs suggests that Goal Progress Theory is less useful as an explanatory framework for these phenomena in people with psychological disorder than it is for healthy undergraduate students.

The clinical implications of these data suggest that during history taking, clinicians ought to pay particular attention, not to the number or necessarily the type of life events experienced prior to the onset of psychological difficulties, but to the level of

disruption, impact and daily hassles that these life events have caused or possibly are continuing to cause for the individual.

In addition, a full formulation of presenting difficulties and associated life circumstances ought to be sensitive to the individual's response to life events, particularly ruminative responses. Such ruminative responses appear likely to increase an individual's contact with memories and thoughts about difficult life events whilst being unlikely to be a successful strategy for coming to terms with such experiences. Paradoxically, an individual engaging in rumination is likely to be cognitively involved in their internal world, may appear more withdrawn, less talkative and therefore may be less likely to seek social support.

Individuals in treatment may believe (mistakenly) that their rumination is an effort to gain valuable self knowledge, which will ultimately lead to positive outcomes. Therapists might use behavioural experiments to ascertain the value of rumination as a useful long and short term strategy, in an effort to undermine its persistence. Interestingly, the way in which one focuses attention on the self appears critical. Previous literature and our current data set point to the analytic, questioning and replaying of mental events type of self focus (that measured by the SRSQ) to be detrimental. The development of mindfulness based perspectives in both clinical practice and in the laboratory suggests however, that a more experiential type of self focussed attention might be a useful activity for people struggling with sad moods (Segal, Williams and Teasdale, 2002; Watkins and Teasdale, 2001; 2004)

Experimental studies may determine if such attentional strategies can successfully moderate rumination, and whether such moderation is a useful strategy in treating depression. Given the literature reviewed regarding rumination and the maintenance and intensification of sad moods, treatment that alters rumination would be predicted to have a large effect on mood. Although not longitudinal, similarly large associations between depression and rumination were seen in the current study.

The current study is limited by using a relatively small sample, though the study did have adequate power to detect these effects. The clinical samples recruited were typical of U.K. National Health Service Primary Care Psychology Service patients

and therefore the results can be relatively easily generalised to other similarly psychologically disordered individuals.

Given such samples, the two clinical groups were relatively 'impure' in terms of being purely diagnosable with major depression. Whilst major comorbidities were excluded, the depressed group were a relatively impure sample, experiencing symptoms of agitation and anxiety in addition to major depression, as is typical of many patients in clinical practice. Similarly, the 'psychological distress' group, whilst not reaching criteria for major depression, did have some depressive symptoms. The relative impurity of sampling therefore is a limitation of the study. Given that clear effects were observed between these groups does suggest however that the presence of depressive symptoms of a severity sufficient to meet diagnostic criteria does lead an individual to have noticeably different responses to the self report measures employed.

A final limitation of the current study, as indicated previously is the caution we must have regarding the casual nature of relationships. Our analysis used a series of multiple regressions to statistically predict relationships between constructs. Whilst this approach does suggest the relationships we have described, the analysis remains associative and therefore definitive statements about causality are not warranted.

Future experimental and clinical studies will continue to bring more detailed knowledge regarding the relationships between life events, psychological processes, beliefs and emotional dysfunction. Our data suggest that daily hassles are more predictive of depressive symptoms than major life events, particularly in those who ruminate. Our data further suggest a strong link between rumination and depression and that this does not appear to be strongly influenced by goal hierarchies. Finally, it appears that the experience of major depression confers upon the individual additional daily hassles that are not seen in other forms of psychological distress.

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Table 1: Sample Demographics

		Group 1 Major Depression N = 22	Group 2 Psychological Distress N = 25	Group 3 Never depressed N = 23
Gender	Female	13	12	11
	Male	9	13	12
Age ¹ .	Mean	42.1	42.8	35.1
	SD	12.0	12.7	10.7
	Range (min-max)	18-59	18-61	24-60
Total CES-D score		39.5 (11.7)	15.0 (9.25)	4.6 (3.76)

¹ Participants in group 3 were found to be younger than participants in the other groups. One way analysis of variance (ANOVA) revealed that this difference approached significance ($F(2, 67) = 2.99$; $p=0.06$). Further analysis showed that age was not related to any of the dependant variables, therefore age was not considered as a covariate.

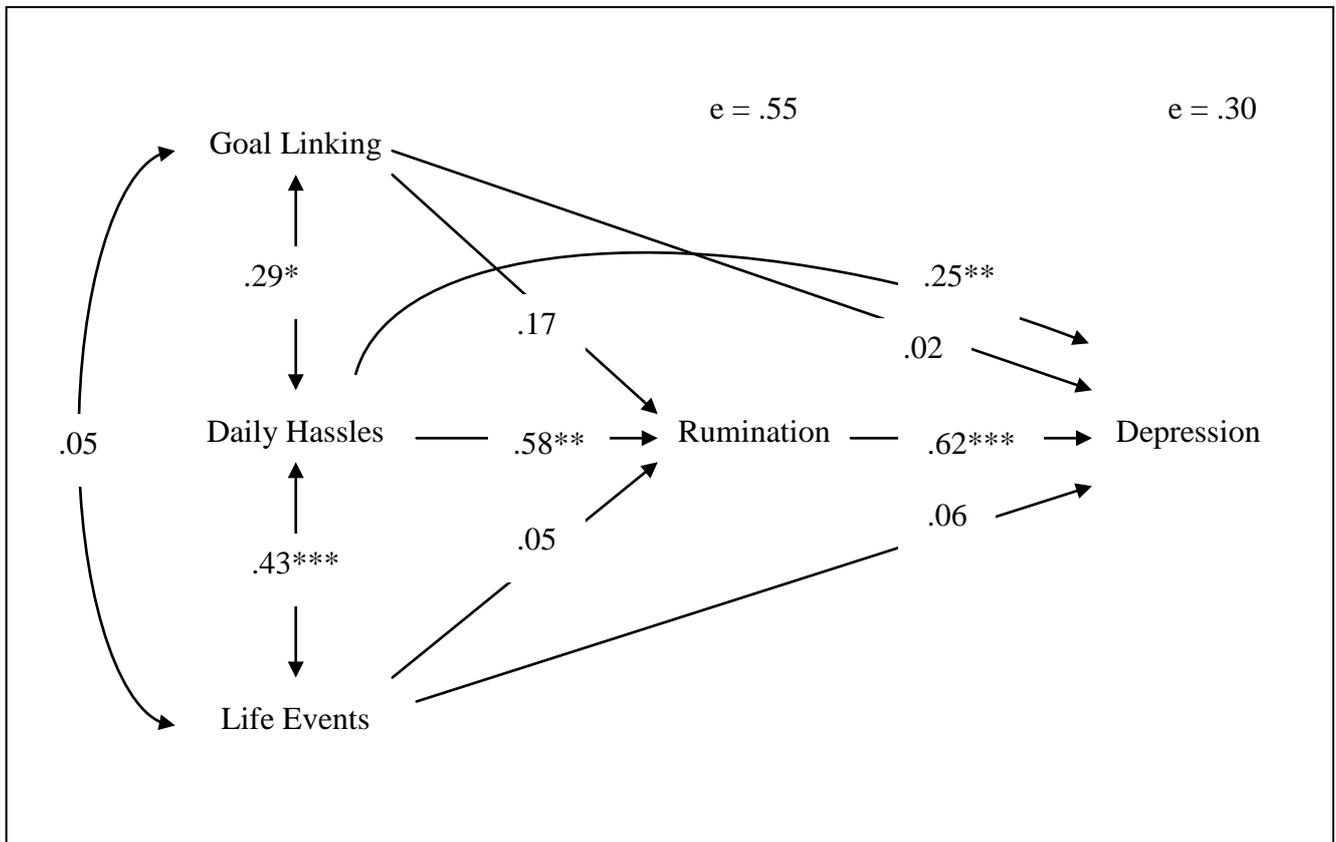
Table 2: Results by Group

Measure	Group1 Mean (SD)	Group2 Mean (SD)	Group3 Mean (SD)	F _(df2,67)	Sig.
Total Linking Score	6.9 (2.99) ^a	4.8 (2.8) ^b	4.1 (2.75) ^b	5.77	<.01
Total Rumination	31.5 (4.28) ^a	23.2 (5.46) ^b	19.4 (4.7) ^c	35.8	<.001
Total Daily Hassles	90.5 (18.06) ^a	72.0 (15.86) ^b	66.5 (13.24) ^b	14.3	<.001
Total Number of Life Events	4.1 (2.01)	3.8 (1.83)	2.8 (1.78)	2.84	>.05
Life Events Scaled Score	148.1 (80.77) ^a	135.3 (72.1) ^{a,b}	92.8 (54.06) ^b	3.93	<.05
Total Impact of Life Events	16.0 (8.76) ^a	13.0 (5.94) ^{a,b}	8.3 (6.34) ^b	6.88	<.01
Total CES-D score	39.5 (11.7) ^a	15.0 (9.25) ^b	4.6 (3.76) ^c	92.18	<.001

Means with different superscripts are significantly different at p<0.05

Emily Mackintosh Figure 1

Figure 1: Path Analytic Model of Relationships between Goal Linking, Daily Hassles, Scaled Life Events, Rumination and Depression



* $p < .05$ ** $p < .01$ *** $p < .001$