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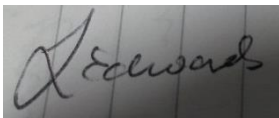**MAJOR RESEARCH PROJECT**

LITERATURE REVIEW: What are the characteristics of personal avoidance goals that play a role in depressed mood?

EMPIRICAL PAPER: Does approach vs. avoidance framing influence rumination cued by unresolved goals?

Submitted by Leyanne Clare Edwards, to the University of Exeter as a thesis for the degree of Doctor of Clinical Psychology, May 2017

I certify that all material in this thesis which is not my own work has been identified and that no material has previously been submitted and approved for the award of a degree by this or any other University.

Signature: ……………………………………..

Author's Declaration

The literature review was completed independently by the author. All elements of the empirical work were completed independently by the author.

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LITERATURE REVIEW

What are the characteristics of personal avoidance goals that play a role in

depressed mood?

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Target Journal:	Cognition and Emotion
Word Count:	**4649** **Words** (excluding abstract, table of contents, list of figures, references, footnotes, appendices)

Submitted in partial fulfilment of requirements for the Doctorate Degree in Clinical Psychology, University of Exeter

Abstract

Background: Avoidance goals have been found to be associated with the onset and maintenance of depression. Understanding the links between characteristics of idiographic avoidance goals and depression may increase the understanding of depression and inform clinical interventions.

Objectives: The purpose of this review is to determine the characteristics of personal avoidance goals that are associated with depressed mood.

Method: Systematic review of all literature to date using Embase, PsycINFO, PsycARTICLES and Web of Knowledge databases, Google scholar and references from review articles with a narrative discussion. The critique was guided by the Quality Assessment Tool for Quantitative Studies (Effective Public Health Practice Project, 2009), given its suitability for a wide range of research designs.

Results: Twelve studies were identified in the review. Studies consisted of correlational or cross-sectional designs, utilising similar personal goal generation tasks.

Conclusions: A range of avoidance goal characteristics were identified as being associated with depression, including number of goals, goal specificity, attainability and underlying motivations.

Keywords: Idiographic Goals, approach, avoidance, depression.

Introduction

Motivation is a key factor in everyday life, involving the energization and direction of behaviour (Elliot & Covington, 2001). Encompassed within this is the pursuit of goals, which provides a bridge between motivational dispositions and their translation into practice through behaviour (Dickson et al., 2011). Austin & Vancouver (1996, p. 338) define goals as "internal representations of desired states, where states are broadly construed as outcomes, events or processes". A fundamental distinction can be drawn between motivation that is approach vs. avoidance oriented (Elliot & Covington, 2001). Approach goal motivation refers to desiring a positive outcome (or wishing to maintain this outcome), whilst avoidance goal motivation refers to the desire to avoid a negative outcome (Sherratt & MacLeod, 2013).

Avoidance goals, mood and self-regulation

Research has demonstrated that approach and avoidance goal pursuit are associated with distinct affective and cognitive consequences. Self-regulation is a key concept within goal pursuit, referring to how individuals control and direct their behaviour when setting and attaining goals (Carver & Scheier, 1998; Kanfer, 1970). It is commonly characterized by three processes: establishing goals, engaging in goal-directed behaviour and monitoring goal progress (Carver & Scheier, 1982). Engaging in and monitoring goal-directed behaviour requires physical and cognitive energy to remain focused, shield attention from competing demands and organise/ adjust the tactics for goal achievement (Oertig, Schuler, Schnelle, Branstatter, Rosker & Elliot, 2013).

Avoidance goals keep the individual focused on something to move away from, with various research supporting a link between avoidance motivation and negative cognitive biases (Trew, 2011), specifically with high avoidant

individuals showing difficulty disengaging from negative cues (Gray, 1986; Trew, 2011). Avoidance based processes are highly demanding of self-regulatory resources. They restrict the individual from noticing the presence of a positive state that provides psychological nutriments, as progress is simply represented by the absence of a negative state (Oertig et al., 2013). Focus on achieving the absence of a negative state does not instruct on a positive direction, for example "avoiding sweets" does not tell an individual what to eat instead. Also, avoidance requires continuous monitoring and thoughts to check for the to-be-avoided outcome, which likely increases rumination and occupies resources further, skewing attention on to negative outcomes. The inherent negative focus of avoidance goal pursuit results in a variety of aversive psychological, emotional and physical processes, such as distracting thoughts, anxiety and desire to escape from the goal relevant situation (Oertig et al., 2013).

Various theories of approach and avoidance motivation have been discussed (see Trew, 2011). One prominent theory is Gray & McNaughton's (2000) reinforcement sensitivity theory, which proposed three motivational systems that regulate emotion and behaviour: a behavioural approach system (BAS; reward sensitive), a fight-flight-freeze system (FFFS; punishment sensitive) and behavioural inhibition system (BIS; governs response to conflicts between the BAS & FFFS). Whilst the BAS is proposed to stimulate action towards rewarding goals, associated with happiness (Gray, 1990), the FFFS generates fear and escape behaviours (avoidance), as a result the BIS generates anxiety when there is goal conflict. An overactive BIS is a proposed shared feature of anxiety and depression, whereas an underactive BAS is unique to depression (Fowles, 1994). Carver & Scheier (1998) focus on the

degree to which self-discrepancies, described as rates of goal progress, are reduced. Carver and Scheier's (1982, 1998) control theory hypothesises that all behaviour is goal-directed within a complex hierarchy, whereby insufficient goal progress is monitored and generates negative affect, proposing that discrepancies on an avoidance goal give rise to anxious-agitated affect and discrepancies on an approach goal give rise to depressed affect.

Research has demonstrated that avoidance goals are concurrent and longitudinal negative predictors of health behaviour and participant well-being and positive predictors of physical symptomology (Elliot et al., 1997; Oertig et al., 2013). Avoidance goals also influence mood: individuals experience more anxious mood in relation to setting avoidance goals than approach goals (Carver & Scheier, 1990). Work on achievement goals found motivation to avoid incompetence resulted in ineffective study strategies, poor performance and reduced intrinsic motivation (McGregor & Elliot, 2002; Van Yperen, 2006). Similar findings have been established with social goals, revealing attempts to avoid negative relational outcomes have negative consequences for relational and personal well-being (Impett et al., 2010). Research has also found neurobiological components of the avoidance system (FFFS) effect negative information processing biases in depression (Gray, 1986; Trew, 2011). Gray (1986) found low avoidance motivation related to difficulty disengaging attention from positive cues, whilst low approach was linked to difficulty disengaging attention from negative cues.

Avoidance has also been linked to a range of emotions, with both Carver & Scheier (1990; 1998) and Higgins (Higgins, 1987; 1997; Idson, Liberman & Higgins, 2000) linking avoidance process to emotions running from anxiety to relief and approach processing to depressive emotions. Carver, Sutton &

Scheier (2000) support this, suggesting that avoidance failure may trigger anxiety and contribute to a general negative affect, whilst approach failure links to dejected emotions in depression. This link is important, given that anxiety is often co-morbid with symptoms of depression (Alloy, Kelly, Mineka & Clements, 1990, p 499-543).

Additionally, characteristics such as perceived uncontrollability and future outcome expectations (Abramson, Metalsky, & Alloy, 1989; Danchin, MacLeod & Tata, 2010; Dickinson et al., 2011), setting abstract goals (Dickinson & MacLeod, 2004; Vincent, Boddana, & Macleod, 2004; Watkins, 2011) and making abstract plans (Nezlek, 2001) are implicated in depression.

Furthermore, goals are proposed to exist within hierarchies (Carver & Scheier, 1998; Higgins, 1987) and a limited amount of research has assessed underlying motivations and links to depression (Sherrat & MacLeod, 2013). Representations of the future self in terms of ideal and ought states, have been considered to be important in motivation (Higgins, 1987). Within Higgins' (1987) self-discrepancy theory, individuals are proposed to be motivated to reach an "ideal self-state" or an "ought self-state" from their actual self. Ideal self-regulation involves pursuing positive outcomes, whilst "ought" regulation involves avoiding negative outcomes (Higgins et al., 1994; Trew, 2011). Higgins (1987) characterizes "oughts" as approach goals for which a deeper motivation is avoidance based, for example "I ought to help my mother and if I don't I will feel guilty"". Discrepancies between actual and ideal states have been found to result in depressive symptoms, whilst discrepancies between actual and ought states result in guilt and anxiety (Higgins, Klein, & Strauman, 1985; Higgins, Strauman, & Klein, 1986).

Few studies have directly examined individuals' personal approach and avoidance goals and their relationship to depression, yielding mixed results. Personal goals are an important type of goal, providing individuals with a deeper purpose in life, rather than just responding to immediate rewards and punishments. Furthermore, personal goals provide stability in behavior, rather than individuals responding to immediate incentives. A meta-analysis by Aldoa et al. (2010) supported a medium to large positive relationship between general avoidance (not specific to goals) and depression (stronger in clinical samples). Better understanding the relationship between depression and personal avoidance goals is both theoretically and practically important. Goal setting has been found to be an important component of any goal directed behaviour. Setting personal treatment goals is an essential component of quality assurance, aids the direction of the therapy process and provides an evaluative outcome (Jacobson et al., 2001). This is of particular importance in cost-intensive treatments, such as Cognitive behavioral therapy (CBT), acceptance and commitment therapy (ACT) and motivational interviewing, which involve goal-orientated processes. If goal setting is considered a key therapeutic element, suitable goal descriptions and understanding goal motivations may lay the ground work for successful treatment.

This review, therefore, investigates the relationship between depression and goals, specifically asking: what are the characteristics of personal avoidance goals that play a role in depressed mood.

Methods

This systematic review is structured in line with the PRISMA reporting procedure (Moher et al., 2015), a standardised approach for review.

Eligibility Criteria

Participants. Participants of all ages were included and participants were included regardless of whether they were from clinical or non-clinical populations. There were no exclusion criteria for participants. This was in order to capture the broadest range of evidence available.

Goals measures. Studies were included in this review if they measured personal avoidance goals or characteristics of these goals, e.g., number, importance, etc. Goals had to be personally pursued outcomes (either self-reported by the participant or selected from a list) and the measurement of avoidance goals included both standardised and non-standardised questionnaires, e.g., the Achievement Goal Questionnaire, which asks participants about the extent to which they pursue certain types of goals in achievement settings (AGQ; Elliot & Murayama, 2008). Additionally, studies were included if they investigated personal (i.e., idiographic) goals or "strivings" that participants freely generate which were then subsequently coded as either approach or avoidance orientated, as were studies that explicitly requested avoidance goals (e.g., Dickson & MacLeod, 2004a). Studies that manipulated avoidance goals for the purpose of laboratory tasks were excluded. Studies that focused on specific types of avoidance goal content, e.g., avoidance goals and eating, sports performance, intimate relationships, chronic pain (to name a few) were excluded.

Depression measures. Included articles will have used a sound psychometric assessment for depressive symptoms, aligned with DSM-V/ICD-10 (American Psychiatric Association, 2013; World Health Organisation, 1992) criteria for depression, with good established reliability and validity. These

included, but were not limited to: Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), Patient Health Questionnaire (PHQ-9; Kroenke, Spitzer, & Williams, 2001), Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) and Structured Clinical Interviews that provide diagnostic classification (SCID; First, Spitzer, Gibbon & Williams, 2002). Studies using more generic measures of 'negative affect', 'subjective well-being' or 'anhedonia' and studies that used samples with co-morbid difficulties, e.g. depression and psychosis or substance misuse, were excluded.

Study designs. Studies considered for inclusion were: a) cross-sectional designs examining the association between characteristics of avoidance goals and depression; (b) prospective longitudinal designs examining the association between characteristics of avoidance goals and depression over time, and c) experimental designs that manipulated characteristics of avoidance goals or depressive symptoms and examined the effect on the other variable. Qualitative and single case studies were excluded.

Other criteria. Non-English written papers were included, but only where a translation of the paper was available. Unpublished work, such as thesis papers were included in order to provide a breadth of research. Review and theoretical papers were excluded.

Information sources

Electronic databases searched were: PsycINFO, PsycARTICLES, EMBASE and Web of Science. Databases were searched from the beginning of the database up to 20th February 2017. Reference lists of the articles retrieved and review articles (Aldoa et al., 2010; Trew, 2011) were also examined for relevant studies. Google Scholar was searched for articles.

Search Strategy

Titles and abstracts in all databases were searched using depress* OR low mood OR dysphoria AND motiv* OR goal OR life task OR current concern OR personal striving AND avoid* OR punish* OR avert* OR evad*.

Study Selection

After elimination of duplicates, titles and abstracts of all articles identified were initially screened against the eligibility criteria. Relevant articles were then read in full and further assessed for eligibility, with reasons for non-eligibility noted. At the full-text screening stage, 10% of the studies were selected at random, and checked by an independent clinical researcher for suitability. Good levels of consistency were found between the researcher and the second rater (92%), which ensured the validity of this process. One article was discussed, due to a disagreement and was subsequently included. Articles were easily obtained in full texts and translated versions of articles (provided by the author) not written in English were also obtained.

Data extraction

Data were extracted from the studies with a data extraction form with headings for population, intervention, control, outcomes and method (PICO; O'Connor, Green, & Higgins, 2011).

Quality evaluation

The included studies were assessed for quality using the Quality Assessment Tool for Quantitative Studies (Effective Public Health Practice Project, 2009), considering satisfactory sample sizes, representativeness of the sample, and validity and reliability of the measures used. This tool was chosen because it is suitable for a wide range of designs. Studies were not excluded on

the basis of these judgments, but these were used to weight the significance of findings in the narrative review.

Results

Records were identified through database searches, with many records excluded at the titles/ abstracts search stage as they revealed studies that were related to specific single goals around eating, exercise or pain. An additional 15 records were identified through alternative sources (e.g., references from reviews), resulting in a total of 90 articles. After applying inclusion and exclusion criteria at the title and abstract screening stage and then at the full text article screening stage for those papers that remained, a total of 12 articles were included within this review (see Figure 1).The majority of the papers excluded did not specifically focus on depression, using measures of subjective well-being or measured behavioural avoidance, as opposed to personal goals.
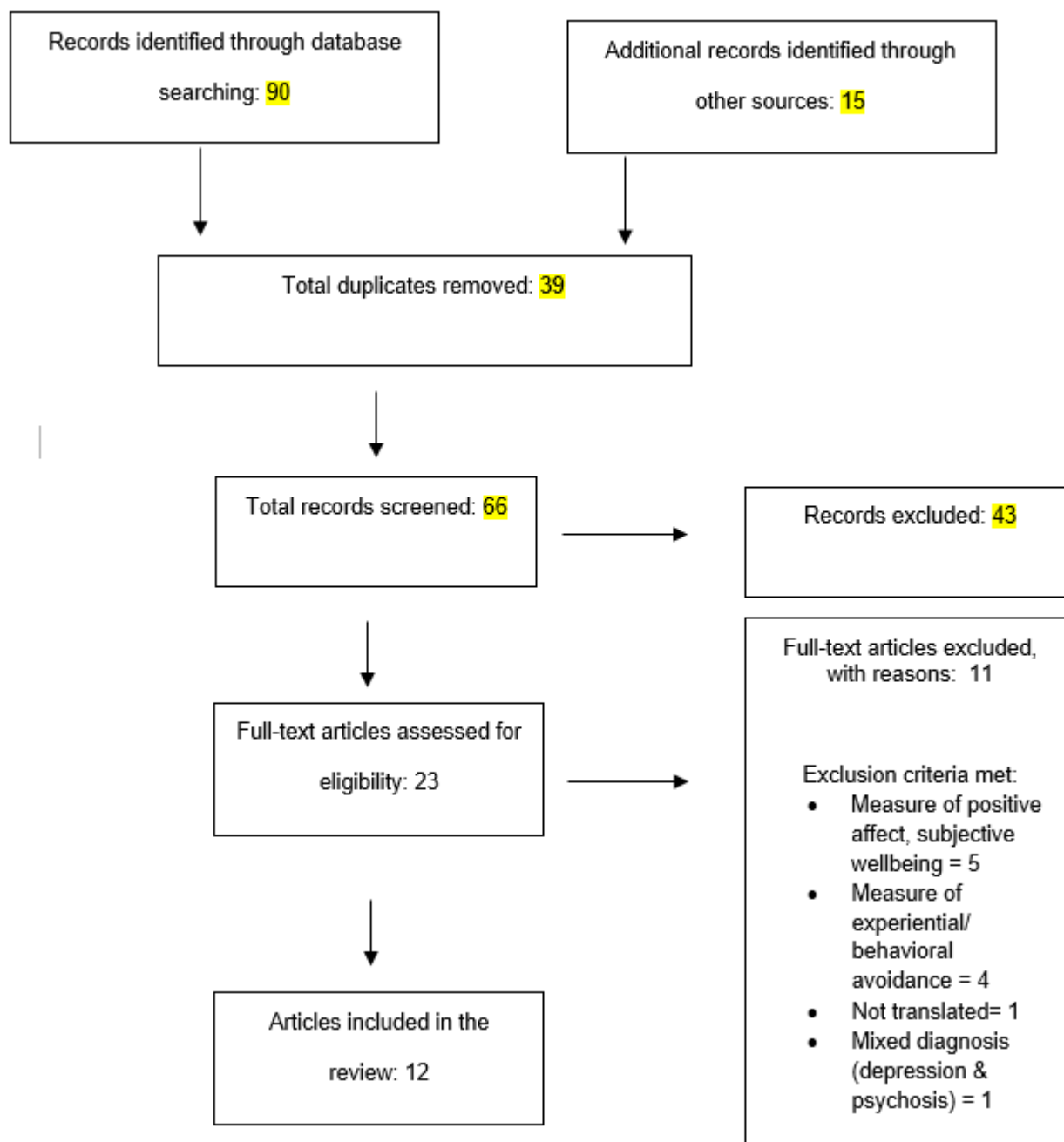
Figure 1. Search strategy and process of identification, screening and eligibility and inclusion for the review

Table 1

Studies included in the review, including study characteristics, measures, relevant main findings and critical evaluation

	Participants	Design & Method	Findings	Evaluation	QATQS ratings (see note for abbreviated ratings)
Undergraduate Studies					
Coats, Janoff-Buman, & Alpert (2006, Expt. 1)	University students (*N* = 81). (56 Female; 25 Male; 69% female)	Cross-sectional study. Self-generated goal task: listing "personal strivings", which were then coded as "approach" or "avoidance". Likert ratings for: goal importance, satisfaction of goal achievement, past difficulty with goal, rating of likelihood of success. Self-rating depression scale (Zung, 1965). Rosenberg self-esteem scale.	Positive associations were found between depressive symptoms and the number of avoidance strivings ($r = .27$), the ratio of avoidance: approach strivings ($r = .36$).	**Strengths:** Use of standardised measures for depression. Idiographic measure of goals. **Limitations:** Undergraduate population. Significantly more approach goals coded (61%) than avoidance goals (23%).	A: Moderate B: Moderate C: Weak D: Moderate E: Weak F: Moderate **Overall rating: Weak**
Winch, Moberly & Dickson (2015)	Undergraduate student sample (*N*=136) (102 Female; 54 Male; 75% female)	Cross sectional study looking at association between depressive symptoms & goal motivation. Measures: PHQ-9, GAD-7. Idiographic goal task. Importance ratings (7 point Likert scale). Goal motives (7 point Likert scale).	Depressive symptoms were significantly negatively correlated with intrinsic motivation for approach goals ($r= -.21$) and significantly positively correlated with external regulation for all goals (AP $r=.18$; AV $r = .23$) and with introjected regulation for approach goals ($r= .22$)	**Strengths:** Good sample size. Use of standardised measures. Idiographic goals. Limitations: Undergraduate population. Rater blinding unclear.	A: Moderate B: Moderate C: Strong D: Moderate E: Strong F: Moderate **Overall rating: Strong**
Vergara & Roberts (2011)	Undergraduate (UG) student sample Depressed (*N*=43) & Never depressed (*N*= 40) (47 Females; 36 Male; 57% female)	Cross-sectional study assessing differences between depression (experience or not) and AP/AV goals. Measures: PHQ-9, BDI-II, MINI, SPSRQ. Goal orientation task. The Revised HWK Goal Commitment scale. Spontaneous Implementation Intention scale	Previously depressed persons reported more avoidance goals but not fewer approach goals than never depressed controls ($d=.58$)	**Strengths:** Use of standardised measures. Counterbalancing of goal presentation **Limitations:** Use of UG sample-poor generalizability. Standard deviations & means not reported.	A: Strong B: Moderate C: Strong D: Moderate E: Strong F: Moderate **Overall rating**: **Strong**
Adolescent Studies					.
Dickson & MacLeod (2004a)	Adolescent school sample (*N*=144).	Cross-sectional design looking at associations between goals and depressive symptoms.	Anxiety was associated with more self-generated avoidance goals ($r = .18$), along with perceiving more avoidance related consequences to goal outcomes	**Strengths:** Good sample size. Use of standardised measures. Idiographic goals.	A: Moderate B: Moderate C: Moderate D: Moderate

	(78 Female; 65 Male; 54% female)	Measures: HADS & AGQ. Idiographic goal task. Consequence of goal attainment task.	(r = .35). depression was associated with having fewer self-generated approach goals (r = -.17) and fewer approach goal consequences (r = -.30), no association between depression and avoidance goals was found (r = .03)	**Limitations:** Poor generalizability (non- clinical adolescent only sample).	E: Strong F: Moderate **Overall rating: Strong**
Laurent (2016)	Adolescent school sample (N= 240) (189 Female, 56 Male; 79% female)	Cross-sectional study assessing the association between depression, number of avoidance goals & underlying motivations. Measures: PHQ-9, GAD-7, PWB scale. Idiographic goal task. Underlying motivation task. Self-Determination Scale.	Higher depression scores were linked with more avoidance goals (r= .16) and with more underlying avoidance reasons to avoidance goals (r= .17). No association was found between depression scores and less underlying approach reasons.	**Strengths:** Use of standardised measures. **Limitations:** Poor generalizability (non- clinical adolescent only sample).	A: Moderate B: Moderate C: Moderate D: Moderate E: Strong F: Moderate **Overall rating: Strong**
Dickson & MacLeod (2004b)	Adolescent school sample- high depression (N=25), high anxiety (N=27), mixed (N=30) & control (N=30) (55 Female; 54 Male 50% female)	Cross-sectional study looking at association between avoidance goal and plans and depression. Measures: BDI, BAI. Idiographic goal task. Idiographic plans task.	Compared to controls, high depressed (HD) and mixed adolescents (MA: high anxiety and depression) generated more avoidance plans (HD: d=.10; MA: d=.51). However, no significant difference was found between high depressed participants and controls for avoidance goals.	**Strengths:** Control group, consideration of comorbid anxiety. Idiographic goals and plans. . Counterbalancing of goal presentation. Use of standardised measures. **Limitations:** Poor generalizability (non- clinical and adolescent only sample).	A: Strong B: Moderate C: Strong D: Strong E: Strong F: Moderate **Overall rating: Strong**
Dickson & MacLeod (2006)	Adolescent school sample- dysphoric (N=59) & non-dysphoric controls (N=52) (50 Female; 59 Male; 45% female)	Cross-sectional study assessing association between dysphoria and goals. Measures: BDI. Idiographic goals task. Goals likelihood task (7 point Likert scale). Personal control task (7 point Likert scale).	Dysphoric adolescents generated more avoidance goals than controls (d= 35). Dysphoric participants indicated fewer reasons for goal achievement (d=.15) and more reasons for goal non-achievement regardless of goal type. (d= -.15)	**Strengths:** Control group. Counterbalancing of goal presentation. Idiographic goals Use of standardised measures. **Limitations:** Poor generalizability (non- clinical and adolescent only sample). Dichotomization of continuous depression scale.	A: Strong B: Moderate C: Strong D: Moderate E: Strong F: Strong **Overall rating: Strong**
Community Studies					
Belcher & Kangas (2014)	60 community participants- depressed (N=30) and non-depressed control (N=30)	Cross-sectional study assessing differences between depressed/ non-depressed p's on goals. Future imagining test. Idiographic goal task.	Comparisons of depressed vs. non depressed participants, results indicated that depressed individuals set fewer specific avoidance goals, compared to controls (d=.56). Furthermore, depressed individuals believed they had fewer skills to achieve their goals,	**Strengths:** Use of control group, Community based sample- good generalizability. Idiographic goals. Use of standardised measures. **Limitations:** No counterbalancing of approach/ avoidance instructions. Small sample size	A: Strong B: Moderate C: Moderate D: Strong E: Strong F: Strong **Overall rating: Strong**

	(46 Female; 14 Male; 77% female)	Screened using the SCID & BDI-II	regardless of goal type (AP: $d=$ .3030; AV: $d=$ .97)		
Dickson & Moberly (2013)	NHS recruited depressed patients (*N*=21) and community controls (*N*=24) (30 Female; 15 Male; 67% female)	Cross-sectional study assessing depressed/ non depressed p's on specificity of goals. Measures: SCID, BDI-II. Idiographic goal task.	Depressed individuals generated fewer specific explanations for avoidance goal non-attainment (d=.89)	**Strengths:** Use of clinical sample and control comparison. Reliable, valid measures. Idiographic goals. **Limitations:** Weaker specificity measure. Use of single-statement – limitations for measuring specificity of goals.	A: Strong B: Moderate C: Strong D: Strong E: Strong F: Strong **Overall rating: Strong**
Dickson, Moberly, & Kinderman (2011)	NHS recruited depressed patients (*N*=23) and community controls (*N*=26) (32 Female; 16 Male; 1 unknown; 65% female)	Cross-section study design testing differences between depressed/non depressed p's, number of goals (AP/AV) & perceived goal attainment. Measures: SCID, BDI-II. Idiographic goal task. Goal explanation task. Goal ratings task (7 point Likert scale).	No evidence for more avoidance goals in depressed participants (d=.49). Across goal types, depressed participants generated more pessimistic reasons for, versus against, goal achievement, rating desired goals as less likely to occur and perceiving less control over their goal outcomes.	**Strengths:** Use of clinical sample and control comparison. Reliable, valid measures. Idiographic goals. **Limitations:** Small sample size.	A: Strong B: Moderate C: Strong D: Moderate E: Strong F: Strong **Overall rating: Strong**
Sherratt & MacLeod (2013)	NHS recruited depressed patients (*N*=26) and non-clinical community controls (*N*=33) (39 Female; 20 Men; 66% female)	Cross-sectional design testing differences between depressed/ non depressed p's number of approach/ avoidance goals & underlying motivations for goals. Measures: PHQ-9, GAD-7. Self-generated goal task. Underlying motivation task (self-generated responses).	Across goal types, groups did not differ significantly on the number of goals generated or for the underlying reasons of goals, however, depressed individuals demonstrated more avoidance motivation in relation to their approach goals than controls (d=1).	**Strengths:** Use of clinical sample and control comparison. Reliable, valid measures. Idiographic goals. **Limitations:** Small sample size. Presentation of goals instructions not counterbalanced.	A: Strong B: Moderate C: Strong D: Strong E: Strong F: Strong **Overall rating: Strong**
		Inpatients			
Wollburg & Braukhaus (2010)	Inpatient sample (*N*=657) meeting ICD-10 diagnostic criteria for MDD (458 Female; 199 Male;69% female)	Pre-post therapy design. Self-report questionnaires (therapy goals related). Measure: BDI. P's generate 3 major therapy goals, which were coded by raters and groups were defined based on type of therapy goals set: approach vs. avoidance	Results indicated a reduction in BDI-II scores post therapy across both groups (approach and avoidance), however, there were greater reductions in depressive symptoms in the approach condition. Both groups indicated equal goal achievement, with 50% of group members attaining their goals post therapy. BDI change scores were not correlated with the number of avoidance goals (Rbdi=.73) but improvement on the BDI was positively related to the	**Strengths:** Large sample size. **Limitations:** Non standardised measure for goal generation. Participants group allocation- included in the avoidance if one avoidance goal was generated.	A: Strong B: Moderate C: Moderate D: Moderate E: Weak F: Weak **Overall rating: Weak**

average rating of approach attainment (Rbdi= .40) and avoidance goals (Rbdi= .27).

Note. AGQ: Achievement Goal Questionnaire; BAI: Becks Anxiety Inventory; BDI: Becks Depression Inventory; BDI-II Beck Depression Inventory version 2; GAD-7: Generalised Anxiety Disorder; (v7);

HADS: Hospital Anxiety Depression Scale; HWK: Hollenbeck, Williams and Klein; ICD-10: International Statistical Classification of Diseases and Related Health Problem; MDD: Major Depressive Disorder;

MINI: The Mini-International Neuropsychiatric Interview; N: Number of participants; P's: Participants; PHQ-9: Patient Health Questionnaire; PWB: Psychological well-being scale; SCID: Structured Clinical

Interview for axis I Disorders; SPSRQ: Sensitivity to Punishment (SP) and Sensitivity to Reward (SR) Questionnaire; AP: Approach; AV: Avoidance; UG: Undergraduate; *d*= Cohen's d; *r*= regression statistic

Critical Evaluation

Across populations and overall, studies used similar measures to assess depression, such methods ranged from self-report questionnaires (e.g., BDI, PHQ-9, and HADS) to structured clinical interviews following DSM/ICD-10 criteria. Majority of studies utilised a self-generated goal task, in which participants were asked to write down a number of personal goals (application of a time limit to do so varied across studies). Goal tasks varied across studies, with some instructing participants to provide a specific number of approach and avoidant goals versus instructions to write an unlimited number of personal goals, which were subsequently coded as approach or avoidance.

Undergraduate studies

Three of the studies utilised undergraduate samples and a cross-sectional design, whereby participants were asked to generate a list of personal goals or "strivings" which were coded as either approach or avoidant in nature (Coats et al., 1996; Vergara & Roberts, 2011; Winch et al., 2015). The studies assessed various characteristics of avoidance goal pursuit and its relationship to depression, including the number of avoidance goals produced and underlying motives for avoidance goals. Positive associations, with small to medium effect size, were found between the number of avoidance goals and depressive symptoms, with depressed and previously depressed individuals demonstrating a higher number of avoidance goals (Coats et al., 1996; Vergara & Roberts, 2011). In contrast, Winch et al. (2015) examined whether depressive symptoms were uniquely related to underlying motives for approach and avoidance goals. No associations were found between depressive symptoms and intrinsic or identified avoidance goal motives. The study designs means it is

difficult to determine if goals influence depression or vice versa, or whether a third variable is responsible for this relationship. Furthermore, the studies varied in their strengths. Whilst all used an undergraduate sample, which offers its own limitations, Coates et al., (1996) used less reliable and valid measures of depression and failed to consider any confounders within the design.

Adolescent studies

Of the 12 studies included in this review, 4 employed a cross-sectional design in an adolescent sample**.** Studies considered various characteristics of avoidance goals, including the number of avoidance goals generated, perceptions of goal achievement, plans for goal achievement (approach or avoidance) and consequences of goal outcomes. The studies yielded mixed results for the number of goals generated, with some studies demonstrating an association between depressive symptoms and increased avoidance goals, with small to medium effect size (Dickson & MacLeod, 2004b; 2006). Laurent (2016) found that higher depression scores were associated with the generation of more avoidance goals but not fewer approach goals than non-depressed individuals. Alternatively, Dickson & MacLeod (2004a) found that depressed individuals produced fewer approach goals but not more avoidance goals than controls. All the studies benefited from good sample size, however, Laurent (2016) and Dickson & MacLeod (2004a) did not detail any consideration of confounding variables such as gender. This is particularly of note for Laurent (2016) as the sample consisted of primarily female participants.

Community studies

Four studies focused on individuals in the community with a diagnosis of depression, compared to control participants. Two of the studies examined the

number of approach and avoidance goals generated by participants, as well as additional goal characteristics. They identified no significant differences between depressed and non-depressed controls in the number of avoidance goals generated, with a medium to large effect size (Dickson et al., 2011; Sherratt & MacLeod, 2013), but utilised a small sample resulting in low statistical power. This makes it difficult to conclude that there was no real difference in the population. Dickson et al. (2011) found that depressed individuals generated more pessimistic reasons for goal achievement and rated goals as less likely to occur, as well as having less control over the outcome of the goal. Sherratt and MacLeod's (2013) findings, indicated that depressed individuals identified more avoidant (introjected) reasons than non-depressed individuals for pursuing their approach goals. Thus, despite depressed participants and controls generating a similar number of approach and avoidant goals, when examined further depressed participants' underlying motivations for approach goals were more driven by avoidance motivations. For example, a goal "to be promoted" (approach) was driven by an underlying motive of "not wanting to disappoint my wife" (avoidance). Dickson & Moberly (2013) compared clinically depressed individuals to community sample controls and found that depressed participants generated a smaller proportion of specific goals (compared to the proportion of general goals generated), regardless of goal type (approach vs. avoidance) and a smaller proportion of specific reasons why approach goal attainment would and would not be attained but only a greater proportion of specific reasons why avoidance goals would not be attained but not for why they would be attained (with a large effect size). A similar result was reported by Belcher & Kangas (2014) who found that depressed individuals reported a smaller proportion of specific approach and

avoidant goals than did non-depressed individuals, with a medium effect size. Depressed individuals also reported poor beliefs about their skill to achieve their goals, regardless of goal type. A particular strength of these studies was their use of clinical samples, making the results more generalizable to the population in question. However, they all were limited by small sample sizes. Studies utilising a community sample design, demonstrated a medium to large effect size, in comparison to undergraduate and adolescent studies which demonstrated small effect sizes. The quality of the design, e.g. use of a community sample which is more representative of the target population appears to be an influential factor.

Depressed inpatients

Results from Wollburg & Braukhaus (2010) demonstrated a greater improvement in depressive symptoms pre to post therapy for individuals who set approach vs. avoidance therapy goals. The study was the only that utilised a pre-post therapy design and use of a large clinical sample, allowing for good generalizability for the target population. However, no details were provided of dropout rates. Furthermore, the study does not consider the impact of failed goal achievement on depressive symptoms, an important factor given that only 50% of participants indicated goal success. It is possible that participants reported lower rates of attainment on avoidance goals than approach goals, and this difference in attainment may have been responsible for symptom levels.

Discussion

This systematic review of the published data on 12 articles yielded a complicated picture of avoidance goal characteristics and links to depression. Results indicated links between depressive symptoms and either increased

avoidance goals or decreased approach goals; along with positive associations between avoidance goals, depressive symptoms, reduced goal specificity, underlying avoidance motivations and reduced perceived controllability. These results will be considered in light of the different populations and designs implemented.

It was apparent from the studies that there are possible characteristics of avoidance goals that are linked to depressive symptoms, these included: the number of goals, the specificity of goals and underlying motivations of goals. Similarly, goal type (approach vs. avoidance) appeared to be associated with perceptions of future goal success and this was further linked to depressive symptoms. Individuals higher in depressive symptoms appeared to report a higher number of avoidance goals (Coats et al., 1996; Dickson & MacLeod, 2004b, 2006; Laurent, 2016; Vergara & Roberts, 2013) in comparison to non-depressed controls. These results were apparent across different populations, adolescents and adults. However, results across clinical populations also found no significant differences in the number of goals generated for depressed individuals compared to controls (Dickson et al., 2011; Sherratt & MacLeod; 2013). Differences in population could explain said results, as it is possible that reductions in approach goals and increases in avoidance goals may be more apparent during adolescences and undergraduate populations, when uncertainty associated with developmental and identity transitions may result in more salient avoidance goals for depressed persons. Equally, this could be explained by small sample size, resulting in a reduced sensitivity to detect real differences. In contrast to this, results using a pre-post therapy design found that therapy avoidance goals were negatively associated with improvement in depressive symptoms, despite equal goal achievement. Thus, goal type could

be influential within a therapeutic context on depressive symptoms, although given only one study utilised such a design, it is difficult to know whether this result is replicable. Nevertheless this result is important given the problems of avoidance goals, such as negative focus, difficulties with regulating and difficulties disengaging from negative cues (Gray, 1986) and, given Fowles (1994) proposal of an underactive BAS uniquely associated with depression. It is important to consider framing of therapy goals, bearing in mind individuals may be more inclined to set avoidance goals, given sensitivities to their avoidance system.

Goal specificity appeared to be an important goal characteristic that was negatively associated with depressive symptoms. The results suggested that depressed individuals are more likely to set non-specific goals, regardless of goal type (Belcher & Kangas, 2014). Thus, suggesting that depressed individuals do not necessarily set more avoidance or fewer approach goals, but set poorly defined goals and overgeneralise undesirable outcomes, resulting in difficulties with goal achievement, which in turn could exacerbate depressive mood (Carver & Scheier, 1998). Such findings are consistent with Carver & Scheier's (1998) control theory, which proposes that goals are organised hierarchically, increasing in specificity from general principles to concrete behaviours, and successful self-regulation requires the individual to devise specific plans that advance progress on more abstract goals. Lack of specificity has been found to be an important factor in depression and self-regulation (Watkins, 2011) and this appears to be similar with idiographic goals. It results in overgeneralization of a negative event, resulting in single failure being represented globally and personally, rather than in terms of specific behaviour. This can influence depressive symptoms (Watkins, 2011).

Amongst these results, studies demonstrated that depressed individuals, both adults and adolescents, perceived fewer skills to achieve their goals (Belcher & Kangas, 2014) and less controllability over their goals (Dickson & MacLeod, 2006; Dickson et al., 2011). Pessimistic expectancies and perceived uncontrollability could be implicated in idiographic goal pursuit, which plays a vital role in long-term motivation. Thus, perceiving goals as less likely to be attained may result in deepened hopelessness and maintain depressive symptoms. In relation to avoidance goals, low confidence would be expected to generate continuing negative affect, particularly if people are not very clear as to how they will attain avoidance goals.

Rather than a simple tendency to pursue avoidance goals, the findings from the review are suggestive of a more complex picture of personal goals in depression. Whilst evidence was presented in support of the number of avoidance goals being associated with depressive symptoms, delving deeper into the studies indicated that depressive symptoms may be more closely associated with the underlying motives for and beliefs about goals. The evidence suggests that an individual's view of how achievable a goal is, how specific they are about what they want to achieve and their underlying motivations for goal attainment may be just as important in depression. It is useful to consider that avoidance goals by nature are often less specific in terms of planning a course of action to achieve said goal "providing minimal concrete guidance and an unclear standard with which to acquire feedback on progress" (Roskes et al., 2014), Thus may be more less likely to be achieved, therefore resulting in depressive symptoms. Thus, it is possible that should an individual make concrete steps to achieving an avoidance goal, depressive symptoms are reduced or not as apparent. The correlational nature of the

studies reviewed makes it impossible to know whether structural or process (e.g., progress) aspects of avoidance goals are causally implicated in depressive symptoms.

Results from the studies revealed that identified approach or avoidance goals are often driven by differing underlying motivations, and perhaps it is these motivations that are more influential on depressive symptoms than the superficial approach/avoidance orientation of the goal (Winch et al., 2015). Thus, people may pursue an approach goal (e.g., "pass my exams") with an underlying motivation for the goal that is strongly oriented to avoiding a negative consequence (e.g., "if I don't pass my exams, I'll be unemployed"). Sherratt and MacLeod (2013) found that depressed people were more likely to have avoidance reasons for pursuing their approach goals, compared to non-depressed people. Failing to capture this deeper level of motivation may present a partial picture of the relationship between avoidance goal pursuit and depression. Furthermore, all of the studies included within this review utilised self-report methodology, this relies on individuals to be both honest about their goal pursuits and self-aware of them. Considering deeper level motivations, individuals may not always be aware of these goals, thus not accurately reporting them within the research context.

Given the correlational design of majority of the studies, directionality cannot be identified. Do individuals become depressed because they set avoidance goals or does the setting of avoidance goals result in increased depressive symptoms? Trew (2011) has suggested that avoidance goals may result in a deactivation of the reward system in depression as people avoid activities that may provide positive reinforcement. Alternatively, is a common

factor (e.g., neuroticism) responsible for the association between avoidance goal pursuit and depression. Future research is required to investigate these possibilities.

Limitations

The lack of prospective and longitudinal designs when addressing personal, idiographic goals was a clear limitation across the studies. The dominance of cross-sectional designs means that causality cannot be determined. Future studies could manipulate goals, reformulating avoidance goals in approach terms. The majority of the studies used a non-clinical population, employing either an undergraduate or adolescent school sample. Thus, the generalizability of such findings to a clinical sample is questionable. Undergraduate students may possess a lower predisposition for avoidance motivation and depressed individuals from this population might be distinct from the general population suffering from depression. It is also unclear whether avoidance goal characteristics predict a transition into or out of clinical depression. Additionally, given developmental differences between late adolescents and adults, generalizability to an adult population is not possible. Thus, future research using a longitudinal design could determine whether goal motivation varies with age. Moreover, studies that did optimise a clinical sample, addressed this weakness, but equally often lacked a large enough sample size, powered only to detect a medium to small effect size. The majority of participants across all papers were female, making generalisations to males difficult. Finally, the majority of the studies employed a similar, if not identical, self-report goal generation measure, which specifically assesses conscious aspects of motivation. Such a task does not tap into more implicit motives that are

important in directing instinctive, unconscious behaviour in unstructured situations. Thus, in addition to self-reported goals, future studies could explore implicit aspects of motivation. Furthermore, it is difficult to determine whether findings related to depression and avoidance goal characteristics were due to co-morbid anxiety as none of the studies assessed this.

Conclusions

This systematic review aimed to explore what characteristics of avoidance goals play a role in depression. Results suggested a mixed picture on whether number of avoidance goals set is influential on depressive symptoms; however, differences in population type could account for this. Furthermore, a range of goal characteristics were found to link to depression, including underlying motivations, specificity of goals and perceptions of goal attainment. Studies utilised almost identical case-control designs, thus not providing any direction of causality or longitudinal effects. Further research testing is required before clinical interventions can be informed.

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Appendices

Appendix A: Quality assessment tool for quantitative studies

COMPONENT RATINGS

A) SELECTION BIAS

(Q1) Are the individuals selected to participate in the study likely to be representative of the target population?
Very likely
Somewhat likely
Not likely
Can't tell

(Q2) What percentage of selected individuals agreed to participate?
80 - 100% agreement
60 – 79% agreement
less than 60% agreement
Not applicable
Can't tell

RATE THIS SECTION: 1 (STRONG), 2 (MODERATE), 3 (WEAK)

B) STUDY DESIGN
Indicate the study design
Randomized controlled trial
Controlled clinical trial
Cohort analytic (two group pre + post)
Case-control
Cohort (one group pre + post (before and after))
Interrupted time series
Other specify _____
Can't tell

Was the study described as randomized? If NO, go to Component C.
No Yes
If Yes, was the method of randomization described? (See dictionary)
No Yes
If Yes, was the method appropriate? (See dictionary)
No Yes

RATE THIS SECTION: 1 (STRONG), 2 (MODERATE), 3 (WEAK)

C) CONFOUNDERS
(Q1) Were there important differences between groups prior to the intervention?
Yes
No

Can't tell

The following are examples of confounders:
Race
Sex
Marital status/family
Age
SES (income or class)
Education
Health status
Pre-intervention score on outcome measure

Q2) If yes, indicate the percentage of relevant confounders that were controlled (either in the design (e.g. stratification, matching) or analysis)?
80 – 100% (most)
60 – 79% (some)
Less than 60% (few or none)
Can't Tell

RATE THIS SECTION: 1 (STRONG), 2 (MODERATE), 3 (WEAK)

D) BLINDING
(Q1) Was (were) the outcome assessor(s) aware of the intervention or exposure status of participants?
Yes
No
Can't tell

(Q2) Were the study participants aware of the research question?
Yes
No
Can't tell

RATE THIS SECTION: 1 (STRONG), 2 (MODERATE), 3 (WEAK)

E) DATA COLLECTION METHODS
(Q1) Were data collection tools shown to be valid?
Yes
No
Can't tell

(Q2) Were data collection tools shown to be reliable?
Yes
No
Can't tell

RATE THIS SECTION: 1 (STRONG), 2 (MODERATE), 3 (WEAK)

F) WITHDRAWALS AND DROP-OUTS
(Q1) Were withdrawals and drop-outs reported in terms of numbers and/or reasons per group?
Yes
No
Can't tell
Not Applicable (i.e. one time surveys or interviews)

(Q2) Indicate the percentage of participants completing the study. (If the percentage differs by groups, record the lowest).
80 -100%
60 - 79%
less than 60%
Can't tell
Not Applicable (i.e. Retrospective case-control)

RATE THIS SECTION: 1 (STRONG), 2 (MODERATE), 3 (WEAK)

G) INTERVENTION INTEGRITY
(Q1) What percentage of participants received the allocated intervention or exposure of interest?
80 -100%

60 - 79%
less than 60%
Can't tell
(Q2) Was the consistency of the intervention measured?
Yes
No
Can't tell

(Q3) Is it likely that subjects received an unintended intervention (contamination or co-intervention) that may influence the results?
Yes
No
Can't tell

H) ANALYSES
(Q1) Are the statistical methods appropriate for the study design?
Yes
No
Can't tell

GLOBAL RATING
COMPONENT RATINGS

Please transcribe the information from the gray boxes on pages 1-4 onto this page. See dictionary on how to rate this section.

A	SELECTION BIAS	STRONG	MODERATE	WEAK	
		1	2	3	
B	STUDY DESIGN	STRONG	MODERATE	WEAK	
		1	2	3	
C	CONFOUNDERS	STRONG	MODERATE	WEAK	
		1	2	3	
D	BLINDING	STRONG	MODERATE	WEAK	
		1	2	3	
E	DATA COLLECTION METHOD	STRONG	MODERATE	WEAK	
		1	2	3	
F	WITHDRAWALS AND DROPOUTS	STRONG	MODERATE	WEAK	
		1	2	3	Not Applicable

GLOBAL RATING FOR THIS PAPER (circle one):
1 STRONG (no WEAK ratings)
2 MODERATE (one WEAK rating)
3 WEAK (two or more WEAK ratings)
With both reviewers discussing the ratings:
Is there a discrepancy between the two reviewers with respect to the component (A-F) ratings?
No Yes
If yes, indicate the reason for the discrepancy
1 Oversight
2 Differences in interpretation of criteria
3 Differences in interpretation of study
Final decision of both reviewers (circle one):
1 STRONG
2 MODERATE
3 WEAK

Appendix B: Quality Assessment Tool for Quantitative Studies Dictionary

The purpose of this dictionary is to describe items in the tool thereby assisting raters to score study quality. Due to under-reporting or lack of clarity in the primary study, raters will need to make judgements about the extent that bias may be present. When making judgements about each component, raters should form their opinion based upon information contained in the study rather than making inferences about what the authors intended.

A) SELECTION BIAS

(Q1) Participants are more likely to be representative of the target population if they are randomly selected from a comprehensive list of individuals in the target population (score very likely). They may not be representative if they are referred from a source (e.g. clinic) in a systematic manner (score somewhat likely) or self-referred (score not likely).

(Q2) Refers to the % of subjects in the control and intervention groups that agreed to participate in the study before they were assigned to intervention or control groups.

B) STUDY DESIGN

In this section, raters assess the likelihood of bias due to the allocation process in an experimental study. For observational studies, raters assess the extent that assessments of exposure and outcome are likely to be independent. Generally, the type of design is a good indicator of the extent of bias. In stronger designs, an equivalent control group is present and the allocation process is such that the investigators are unable to predict the sequence.

Randomized Controlled Trial (RCT)

An experimental design where investigators randomly allocate eligible people to an intervention or control group. A rater should describe a study as an RCT if the randomization sequence allows each study participant to have the same chance of receiving each intervention and the investigators could not predict which intervention was next. If the investigators do not describe the allocation process and only use the words 'random' or 'randomly', the study is described as a controlled clinical trial.

See below for more details.

Was the study described as randomized?

☐ Score YES, if the authors used words such as random allocation, randomly assigned, and random assignment.

☐ Score NO, if no mention of randomization is made.

Was the method of randomization described?

☐ Score YES, if the authors describe any method used to generate a random allocation sequence.

☐ Score NO, if the authors do not describe the allocation method or describe methods of allocation such as alternation, case record numbers, dates of birth,

day of the week, and any allocation procedure that is entirely transparent before assignment, such as an open list of random numbers of assignments.

☐ If NO is scored, then the study is a controlled clinical trial

Was the method appropriate?

☐ Score YES, if the randomization sequence allowed each study participant to have the same chance of receiving each intervention and the investigators could not predict which intervention was next. Examples of appropriate approaches include assignment of subjects by a central office unaware of subject characteristics, or sequentially numbered, sealed, opaque envelopes.

☐ Score NO, if the randomization sequence is open to the individuals responsible for recruiting and allocating participants or providing the intervention, since those individuals can influence the allocation process, either knowingly or unknowingly.

☐ If NO is scored, then the study is a controlled clinical trial.

Controlled Clinical Trial (CCT)
An experimental study design where the method of allocating study subjects to intervention or control groups is open to individuals responsible for recruiting subjects or providing the intervention. The method of allocation is transparent before assignment, e.g. an open list of random numbers or allocation by date of birth, etc.

Cohort analytic (two group pre and post)
An observational study design where groups are assembled according to whether or not exposure to the intervention has occurred. Exposure to the intervention is not under the control of the investigators. Study groups might be non-equivalent or not comparable on some feature that affects outcome.

Case control study
A retrospective study design where the investigators gather 'cases' of people who already have the outcome of interest and 'controls' who do not. Both groups are then questioned or their records examined about whether they received the intervention exposure of interest.

Cohort (one group pre + post (before and after)
The same group is pretested, given an intervention, and tested immediately after the intervention. The intervention group, by means of the pretest, act as their own control group.

Interrupted time series
A time series consists of multiple observations over time. Observations can be on the same units (e.g. individuals over time) or on different but similar units (e.g. student achievement scores for particular grade and school). Interrupted time series analysis requires knowing the specific point in the series when an intervention occurred.

C) CONFOUNDERS

By definition, a confounder is a variable that is associated with the intervention or exposure and causally related to the outcome of interest. Even in a robust study design, groups may not be balanced with respect to important variables prior to the intervention. The authors should indicate if confounders were controlled in the design (by stratification or matching) or in the analysis. If the allocation to intervention and control groups is randomized, the authors must report that the groups were balanced at baseline with respect to confounders (either in the text or a table).

D) BLINDING

(Q1) Assessors should be described as blinded to which participants were in the control and intervention groups. The purpose of blinding the outcome assessors (who might also be the care providers) is to protect against detection bias.

(Q2) Study participants should not be aware of (i.e. blinded to) the research question. The purpose of blinding the participants is to protect against reporting bias.

E) DATA COLLECTION METHODS

Tools for primary outcome measures must be described as reliable and valid. If 'face' validity or 'content' validity has been demonstrated, this is acceptable. Some sources from which data may be collected are described below:

Self reported data includes data that is collected from participants in the study (e.g. completing a questionnaire, survey, answering questions during an interview, etc.).

Assessment/Screening includes objective data that is retrieved by the researchers. (e.g. observations by investigators).

Medical Records/Vital Statistics refers to the types of formal records used for the extraction of the data.

Reliability and validity can be reported in the study or in a separate study. For example, some standard assessment tools have known reliability and validity.

F) WITHDRAWALS AND DROP-OUTS

☐ Score YES if the authors describe BOTH the numbers and reasons for withdrawals and drop-outs.

☐ Score NO if either the numbers or reasons for withdrawals and drop-outs are not reported.

The percentage of participants completing the study refers to the % of subjects remaining in the study at the final data collection period in all groups (i.e. control and intervention groups).

G) INTERVENTION INTEGRITY

The number of participants receiving the intended intervention should be noted (consider both frequency and intensity). For example, the authors may have reported that at least 80 percent of the participants received the complete intervention. The authors should describe a method of measuring if the intervention was provided to all participants the same way. As well, the authors

should indicate if subjects received an unintended intervention that may have influenced the outcomes. For example, co-intervention occurs when the study group receives an additional intervention (other than that intended). In this case, it is possible that the effect of the intervention may be over-estimated. Contamination refers to situations where the control group accidentally receives the study intervention. This could result in an under-estimation of the impact of the intervention.

H) ANALYSIS APPROPRIATE TO QUESTION

Was the quantitative analysis appropriate to the research question being asked?

An intention-to-treat analysis is one in which all the participants in a trial are analyzed according to the intervention to which they were allocated, whether they received it or not. Intention-to-treat analyses are favoured in assessments of effectiveness as they mirror the noncompliance and treatment changes that are likely to occur when the intervention is used in practice, and because of the risk of attrition bias when participants are excluded from the analysis.

Component Ratings of Study:

For each of the six components A – F, use the following descriptions as a roadmap.

A) SELECTION BIAS

Strong: The selected individuals are very likely to be representative of the target population (Q1 is 1) and there is greater than 80% participation (Q2 is 1).
Moderate: The selected individuals are at least somewhat likely to be representative of the target population (Q1 is 1 or 2); and there is 60 - 79% participation (Q2 is 2). 'Moderate' may also be assigned if Q1 is 1 or 2 and Q2 is 5 (can't tell).
Weak: The selected individuals are not likely to be representative of the target population (Q1 is 3); or there is less than 60% participation (Q2 is 3) or selection is not described (Q1 is 4); and the level of participation is not described (Q2 is 5).

B) DESIGN

Strong: will be assigned to those articles that described RCTs and CCTs.
Moderate: will be assigned to those that described a cohort analytic study, a case control study, a cohort design, or an interrupted time series.
Weak: will be assigned to those that used any other method or did not state the method used.

C) CONFOUNDERS

Strong: will be assigned to those articles that controlled for at least 80% of relevant confounders (Q1 is 2); or (Q2 is 1).
Moderate: will be given to those studies that controlled for 60 – 79% of relevant confounders (Q1 is 1) and (Q2 is 2).
Weak: will be assigned when less than 60% of relevant confounders were controlled (Q1 is 1) and (Q2 is 3) or control of confounders was not described (Q1 is 3) and (Q2 is 4).

D) BLINDING

Strong: The outcome assessor is not aware of the intervention status of participants (Q1 is 2); and the study participants are not aware of the research question (Q2 is 2).

Moderate: The outcome assessor is not aware of the intervention status of participants (Q1 is 2); or the study participants are not aware of the research question (Q2 is 2); or blinding is not described (Q1 is 3 and Q2 is 3).

Weak: The outcome assessor is aware of the intervention status of participants (Q1 is 1); and the study participants are aware of the research question (Q2 is 1).

E) DATA COLLECTION METHODS

Strong: The data collection tools have been shown to be valid (Q1 is 1); and the data collection tools have been shown to be reliable (Q2 is 1).

Moderate: The data collection tools have been shown to be valid (Q1 is 1); and the data collection tools have not been shown to be reliable (Q2 is 2) or reliability is not described (Q2 is 3).

Weak: The data collection tools have not been shown to be valid (Q1 is 2) or both reliability and validity are not described (Q1 is 3 and Q2 is 3).

F) WITHDRAWALS AND DROP-OUTS

Strong: will be assigned when the follow-up rate is 80% or greater (Q2 is 1).

Moderate: will be assigned when the follow-up rate is 60 – 79% (Q2 is 2) OR Q2 is 5 (N/A).

Weak: will be assigned when a follow-up rate is less than 60% (Q2 is 3) or if the withdrawals and drop-outs were not described (Q2 is 4).

Appendix C. Instructions for authors for Cognition and Emotion

Manuscript preparation
1. General guidelines
☐ This journal accepts full articles, brief reports, and Registered Reports of Replication (RRR) studies. The Journal also considers theoretical papers and literature reviews as long as these form a major contribution to our understanding of the interplay between emotion and cognition.

☐ Manuscripts are accepted in English. British English spelling and punctuation are preferred. Please use double quotation marks, except where "a quotation is 'within' a quotation". Long quotations of 40 words or more should be indented with quotation marks.

☐ **Full Articles:** A full article will not exceed 8000 words including references, but excluding tables, captions, footnotes and endnotes. Manuscripts that greatly exceed this will be critically reviewed with respect to length. Authors should include a word count with their manuscript.

☐ **Brief Reports:** Manuscripts that describe the findings of one experiment should typically be submitted as a Brief Report. The main text of a brief report should contain no more than 4000 words and should include a maximum of 2 tables or figures and 25 references.

☐ **Registered Reports of Replication (RRR) Studies**: Registered Replication Reports are manuscripts describing the findings of a study designed to directly or conceptually replicate empirical findings published previously.

Unlike the more conventional process where a full report of empirical research is submitted for peer review, RRRs can be considered as proposals for empirical research, which are evaluated on their merit prior to the data being collected. For information on how to prepare Registered Reports of Replication (RRR) submissions see: http://explore.tandfonline.com/page/beh/pcem-registered-reports-of-replication-studies/pcem-rrr-instructions-for-authors.

☐ The style and format of the typescripts should conform to the specifications given in the *Publication Manual of the American Psychological Association* (6th ed.).

☐ All parts of the manuscript should be double-spaced, with margins of at least one inch on all sides. Number manuscript pages consecutively throughout the paper.

☐ Manuscripts should be compiled in the following order: title page; abstract; keywords; main text; acknowledgements; references; appendices (as appropriate); table(s) with caption(s) (on individual pages); figure caption(s) (as a list).

☐ **Title page** . This should contain only: (1) the title of the paper and a shortened version of the title suitable for the running header (not exceeding 40 character spaces) (2) the name, affiliation, email address, postal address and telephone number of all authors (please identify the corresponding author); (3) funding and grant-awarding body acknowledgements.

☐ **It is a condition of submission that authors fully disclose details of their data collection and data analysis.** Upon submission, authors will be

equired to confirm that they adhere to the following statement, and should include this or a similar statement in the methods section: "We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study".

☐ Abstracts of 100-150 words are required for all manuscripts submitted.

☐ Each manuscript should have to 5 keywords.

☐ Search engine optimization (SEO) is a means of making your article more visible to anyone who might be looking for it. Please consult our guidance here.

☐ Section headings should be concise and should not contain numbering.

☐ All authors of a manuscript should include their full names, affiliations, postal addresses, telephone numbers and email addresses on the title page of the manuscript. One author should be identified as the corresponding author. Please give the affiliation where the research was conducted. If any of the named co-authors moves affiliation during the peer review process, the new affiliation can be given as a footnote. Please note that no changes to affiliation can be made after the manuscript is accepted. Please note that the postal and email address of the corresponding author will normally be displayed in the article PDF and the online article.

☐ All persons who have a reasonable claim to authorship must be named in the manuscript as co-authors; the corresponding author must be authorized by all co-authors to act as an agent on their behalf in all matters pertaining to publication of the manuscript, and the order of names should be agreed by all authors.

☐ Biographical notes on contributors are not req

Please supply all details required by any funding and grant-awarding bodies as an Acknowledgement on the title page of the manuscript, in a separate paragraph, as follows:
o *For single agency grants:* "This work was supported by the [Funding Agency] under Grant [number xxxx]."

o *For multiple agency grants:* "This work was supported by the [Funding Agency 1] under Grant [number xxxx]; [Funding Agency 2] under Grant [number xxxx]; and [Funding Agency 3] under Grant [number xxxx]."

☐ Authors must also incorporate a Disclosure Statement which will acknowledge any financial interest or benefit they have arising from the direct applications of their research.

☐ **Tables** should be kept to the minimum. Each table should be typed double spaced on a separate page, giving the heading, e.g., "Table 2", in Arabic numerals, followed by the legend, followed by the table. Make sure that appropriate units are given. Instructions for placing the table should be given in parentheses in the text, e.g., "(Table 2 about here)".

☐ **Results** of statistical tests should be given in the following form: "... results showed an effect of group, $F(2, 21) = 13.74$, $MSE = 451.98$, $p < .001$, but there was no effect of repeated trials, $F(5, 105) = 1.44$, $MSE = 17.70$, and no interaction, $F(10, 105) = 1.34$, $MSE = 17.70$." Other tests should be reported in a similar manner to the above example of an F-ratio. For a fuller explanation of statistical presentation, see the *APA Publication Manual.*

☐ **Abbreviations** that are specific to a particular manuscript or to a very specific area of research should be avoided, and authors will be asked to spell out in uired for this journal.

full any such abbreviations throughout the text. Standard abbreviations such as RT for reaction time, SOA for stimulus onset asynchrony or other standard abbreviations that will be readily understood by readers of the journal are acceptable. Experimental conditions should be named in full, except in tables and figures.

☐ **Footnotes** should be avoided unless absolutely necessary. Essential footnotes should be indicated by superscript figures in the text and collected on a separate page at the end of the manuscript.

☐ For all manuscripts non-discriminatory language is mandatory. Sexist or racist terms must not be used.

☐ Authors must adhere to SI units. Units are not italicised.

☐ When using a word which is or is asserted to be a proprietary term or trade mark, authors must use the symbol ® or TM.

☐ Authors must not embed equations or image files within their manuscript
2. Style guidelines
☐ Description of the Journal's reference style.

☐ Guide to using mathematical scripts and equations.

3. Figures
☐ Please provide the highest quality figure format possible. Please be sure that all imported scanned material is scanned at the appropriate resolution: 1200 dpi for line art, 600 dpi for grayscale and 300 dpi for colour.

☐ Figures must be saved separate to text. Please do not embed figures in the manuscript file.

Files should be saved as one of the following formats: TIFF (tagged image file format), PostScript or EPS (encapsulated PostScript), and should contain all the necessary font information and the source file of the application (e.g. CorelDraw/Mac, CorelDraw/PC).

☐ All figures must be numbered in the order in which they appear in the manuscript (e.g. Figure 1, Figure 2). In multi-part figures, each part should be labelled (e.g. Figure 1(a), Figure 1(b)).

☐ Figure captions must be saved separately, as part of the file containing the complete text of the manuscript, and numbered correspondingly.

☐ The filename for a graphic should be descriptive of the graphic, e.g. Figure1, Figure2a.

UNIVERSITY OF EXETER

SCHOOL OF PSYCHOLOGY

DOCTORATE IN CLINICAL PSYCHOLOGY

EMPIRICAL PAPER

Does approach vs. avoidance framing influence rumination cued by

unresolved goals?

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Target Journal:	Cognition & Emotion
Word Count:	<mark>8458</mark> words (excluding abstract, table of contents, list of figures, references, footnotes, appendices)

Submitted in partial fulfilment of requirements for the Doctorate Degree in
Clinical Psychology, University of Exeter

Acknowledgements

I would like to thank my supervisor, Nick, for his input and feedback on this research. I would like to thank my husband for the endless supply of tea, coffee, treats and hugs to keep me going and my family- a much needed and helpful support. I would like to thank and acknowledge all the individuals that took the time to take part in my research. Finally, I would like to thank my cohort for all their support and guidance throughout this process.

Abstract

Objective: Control theory predicts that the detection of goal discrepancies results in ruminative self-focus (Martin & Tesser, 1996). Previous research has tested this, cueing unresolved vs resolved goals in participants (Roberts et al., 2013). This study aims to build upon research by Roberts et al. (2013) by considering the additional effects of goal type (approach vs avoidance) on state rumination. It was hypothesised that cueing an unresolved goal framed in an avoidance focus would result in increased rumination compared to framing in an approach focus.

Methods: In the present study, student participants were randomly assigned to an unresolved approach goal framing ($n = 38$) or unresolved avoidance goal framing ($n = 37$) condition, prior to completing a rumination task, followed by the sustained attention to response task.

Results: No difference was found on number of ruminative thoughts or task performance between conditions, following the manipulation of goal and state rumination. Both conditions demonstrated reductions in levels of sadness, from pre-to-post manipulation and both reported increased levels of tension from pre-to-post.

Conclusion: The absence of a difference in self-reported rumination throughout the task suggests that framing unresolved goals as either approach or avoidance has no effect on rumination.

Introduction

Day to day, people adopt and pursue a variety of different goals. Austin and Vancouver (1996) define goals as "internal representations of desired states, where states are broadly construed as outcomes, events or processes" (p. 338). Goals can involve maintaining or moving toward a positive outcome (approach goals) or movement away from or avoiding a negative outcome (avoidance goals; Coats, Janoff-Bulman, & Alpert, 1996; Carver & Scheier, 1990). The distinction between approach and avoidance goals is fundamental, with different psychological processes and outcomes linked to differing goal type (Elliot & Sheldon, 1997; Elliot, Sheldon, & Church, 1997; Trew, 2011). Evidence suggests there can be cognitive and affective benefits to approach framing of a goal and detriments to cognition and affect from avoidance framing (Coats et al., 1996; Carver & Scheier, 1990; Oertig et al., 2013; Trew, 2011).

Self-regulation involves the act of changing one's affect, cognition or behaviour in order to bring them in line with a standard, such as a goal (Oertig et al., 2013). It is a core function of the self and is commonly characterized by three processes: establishing goals, engaging in goal-directed behaviour and monitoring the progress of that goal (Carver & Scheier, 1982). Ultimately, engaging in goal directed behaviour requires a level of self-regulation, entailing mental focus on one's aim, mental control to shield attention from competing demands and to contrast one's current state with the aimed state, as well as the ability to organise and adjust strategies used in the goal pursuit. Thus, cognitive resources will be expended to some degree during the process of goal pursuit.

Avoidance goals and self-regulation

An individual's motive to avoid usually entails an aversive object, event or possibility as the focal point of regulation (Roskes, Elliot, & De Dreu, 2014). Compared to approach goals, which focus on positive desired possibilities of self-regulation, resulting in more favourable psychological processes (Trew, 2011); avoidance goals use negative possibilities of self-regulation (Elliot & Sheldon, 1997).

Avoidance goals focus on staying away from a negative outcome, e.g., "Try to avoid doing poorly on my exams" or "Try not to upset my family". Goal striving to avoid failure or negative outcomes (avoidance motivation) uses negative and undesired possibilities as the core of self-regulation, evoking more alertness, attention to detail and information processing, in comparison to striving for success or to achieve a positive goal outcome (Elliot, 2008, 2014; Koch et al., 2008). Thus, the most rewarding experience achieved though enacting avoidance motivation is feeling relief, rather than excitement of enacting approach motivation (Carver, 2006; Roskes et al., 2014). Avoidance goals keep the individual focused on something they need to move away from, which can elicit an 'all-or-nothing' thinking pattern, whereby individuals struggle to attend to the positive cues, alongside the negative and as a result can lead to a depleted sense of goal progress (Carver & Scheier, 1998). Avoidance goals restrict the individual from noticing the presence of a positive state, that provide psychological nutriments, as progress is simply represented by the absence of a negative state (Oertig et al., 2013). Such focus on achieving the absence of a negative state does not instruct on a positive direction, for example "avoiding sweets" does not tell an individual what to eat instead. Avoidance therefore, requires continuous monitoring and thoughts to check for the to-be-avoided

outcome, which likely increases rumination and occupies resources further, skewing attention on to negative outcomes. In addition, avoidance goals do not benefit from a clear end point, as the thing to be avoided is likely to re-occur or remain present, whilst when pursuing an approach goal, once attained the approach outcome is unlikely to be "taken away". The inherent negative focus of avoidance goal pursuit results in a variety of aversive psychological, emotional and physical processes, such as distracting thoughts, anxiety and desire to escape from the goal relevant situation (Oertig et al., 2013).

Research has demonstrated that avoidance goals are negative predictors of health behaviour and participant well-being and positive predictors of physical symptomology (Elliot & Sheldon, 1997; Oertig et al., 2013; Trew, 2011). Furthermore, work on achievement goals has shown that motivation to avoid perceptions of incompetence results in ineffective study strategies, poor performance and reduced internal motivation (McGregor & Elliot, 2002; Van Yperen, 2006). Similar findings have been established within work on social goals, revealing that attempts to avoid negative relational outcomes have negative consequences for relational and personal well-being (Impett et al., 2010). Furthermore, avoidance motivation has been linked to a range of psychopathology, with a marked relationship with depression and anxiety (Aldao, Nolen-Hoeksema, & Schweizer, 2010; Johnson et al., 2003; Trew, 2011). A meta-analysis by Aldao et al., (2010) supported a medium to large relationship between cognitive avoidance and depression, which was even stronger in clinical samples. Research by Dickson and Macleod (2006) demonstrated an association between depression and avoidance goals. Dysphoric adolescents reported more avoidance goals, focused more on negative outcomes and had higher experience of negative outcomes in

comparison to non-dysphoric controls (Dickson & Macleod, 2006). However, approach and avoidance goals do not appear to have a straightforward relationship with depressive symptoms. For example, Dickson, Moberly, and Kinderman (2011) found no significant difference in the number of approach and avoidance goals generated by clinically depressed individuals, compared to non-depressed controls, however, the study was limited by low power, detecting only medium size differences. Furthermore, avoidance has also been linked to a range of emotions, with both Carver & Scheier (1990; 1998) and Higgins (Higgins, 1987; 1997; Idson, Liberman & Higgins, 2000) linking avoidance process to emotions running from anxiety to relief and approach processing to depressive emotions. Carver, Sutton & Scheier (2000) support this, suggesting that avoidance failure may trigger anxiety and contribute to a general negative affect, whilst approach failure links to dejected emotions in depression. This link is important, given that anxiety is often co-morbid with symptoms of depression (Alloy, Kelly, Mineka, & Clements, 1990, pp. 499-543).

Control theories and Rumination

A key maintenance and vulnerability factor of depression is depressive rumination, characterised as a specific form of negatively-valenced repetitive self-focus (Nolen-Hoeksema, 1991; Roberts, Watkins & Wills, 2013; Watkins, 2008). Alternative theories conceptualise rumination differently. Whilst response styles theory (RST) suggests it is a stable, trait-like way of responding to depressed mood involving the focus on negative emotions (Nolen-Hoeksema, 1991, 2000; Roberts et al., 2013), control theory proposes more influential contextual factors as predictors of when any given individual will experience ruminative thoughts (Roberts et al., 2013; Watkins, 2008). Klinger (1975) suggests that conscious thoughts can be divided into two categories: thoughts

that are under a person's control (operant) and those that occur without conscious purpose causing an attentional shift from the immediate goal-directed task (respondent). Klinger (1975) proposes that the cognitive system must establish a way of determining which information it should process immediately and which can be safely ignored. This is achieved by tagging concepts associated with goal pursuit as having priority. Internal or external cues related to the current concern trigger concern related thoughts. In parallel to this, control theories (e.g., Carver & Scheier, 1998; Martin & Tesser, 1996) focus on the degree to which self-discrepancies, described as rates of goal progress, are reduced. Carver and Scheier's (1982, 1998) control theory hypothesises that all behaviour is goal-directed within a complex hierarchy, whereby insufficient goal progress is monitored and generates negative affect, proposing that discrepancies on an avoidance goal give rise to anxious-agitated affect and discrepancies on an approach goal give rise to depressed affect.

Martin and Tesser's (1996) goal-progress theory of rumination builds on this idea, proposing that insufficient rates of higher order goal progress cause individuals to ruminate. Martin and Tesser (1996) propose that insufficient progress towards goals causes goal-related information to become highly accessible, increasing the likelihood that individuals will be cued by, attend to and process information related to an unattained goal. There is also evidence to suggest that constructs related to unattained goals are more accessible than constructs related to attained goals (Förster, Liberman, & Higgins, 2005). Increased attention to goal-related information has been linked to depressive conditions (Carver & Scheier, 1998) and can cause rumination (Martin & Tesser, 1996). Rumination is defined by Martin and Tesser (1996) as a class of conscious thoughts, revolving around the same themes that occur in the

absence of environmental demands triggering the thought. Contrasting with other conceptualisations of rumination, rumination has no specific valence in this definition. Whilst rumination may occur for thoughts on successful experiences, it is proposed that rumination is more commonly prompted by issues with goal achievement. This is because it is more common to chronically undershoot expectations of progress than to chronically overshoot.

Thus, considering the predictions of control theory, rumination is likely to occur when there is a goal discrepancy, e.g., a person is struggling to attain a good rate of progress towards goal attainment. Research has been completed on the association between goal progress and rumination. For example, Moberly and Watkins (2010) using experience sampling found that low goal success was correlated with greater ruminative self-focus and negative affect, with these effects being further influenced still when the goal was more salient. Similarly research by Roberts, et al., (2013) demonstrated that cueing an unresolved goals resulted in greater recurrent intrusive ruminative thoughts. Roberts et al. (2013) found that unresolved goals, compared to resolved goals, led to higher levels of rumination and that performance on a sustained attention response task was affected by rumination such that ruminators took longer to respond but were more accurate. The authors also found that the effect of state rumination was moderated by trait rumination, such that the manipulation of state rumination induced greater levels of rumination for individuals high in trait rumination than those low in trait rumination. This is consistent with evidence from experience sampling that individuals high in trait rumination also experienced greater frequency of state rumination (Moberly & Watkins, 2008).

Given that avoidance goals are achieved through maintaining the absence of a negative state (Roske et al., 2014; Oertig et al., 2013), which

requires tracking, planning and continuously monitoring a goal (resulting in more cognitive load), less specificity of a direction for behaviour, as well as no identified "end-point"; it would seem plausible that such a goal would result in an increased attention to goal discrepancies and as such, rumination. It is reasonable to consider, therefore, that linking these two concepts together, avoidance goals that are unresolved, could result in increased ruminative focus and depressive symptoms, compared to approach goals that are unresolved. Therefore, given the evidence for negative consequences of avoidance goal pursuit, it is useful to assess the effects of approach and avoidance framing on rumination.

In this experiment, state rumination was cued by asking participants to generate unresolved personal goals, which they then thought about in an approach versus avoidance mind-set. The unresolved personal goal paradigm was chosen because its effect on ruminative thoughts has been shown to be maintained across a subsequent cognitive task (Roberts, et al., 2013) and is directly derived from control theory. Because trait rumination has been shown to moderate the effects of focus on an unresolved goal on state rumination (Roberts et al., 2013), both trait rumination and depressive symptoms were measured and their interaction with state rumination was analysed.

This experiment focuses on investigating the effects of adopting an approach versus avoidance focus on unresolved personal goals on rumination and depressive symptoms. Of particular interest is whether framing a goal in an avoidant way increases rumination and affects depressive symptoms, more so than framing a goal in an approach way. Furthermore, the study aimed to

examine whether individuals trait rumination would moderate the effect of goal framing. Hypotheses were:

1. Focus on an unresolved goal in an avoidance manner (i.e., by considering the occurrence of negative outcomes) would be associated with more frequent subsequent ruminative thoughts on the unresolved goal than focus on unresolved goals in an approach focused manner (i.e., by considering the non-occurrence of positive outcomes).

2. The effects of focusing on an unresolved goal in an avoidance manner would lead to more persistent rumination on the unresolved goal over time than focusing on an unresolved goal in an approach manner.

3. Focusing on an unresolved goal in an avoidance manner would result in greater errors on the Sustained Attention to Response Task (SART) than focusing on an unresolved goal in an approach manner.

4. Participants higher in trait rumination will report more rumination on the unresolved goal during the SART, and the effects of the approach/avoidance goal framing will be greater for persons high in trait rumination.

Method

Design

The study utilised a between subjects design with one independent variable (IV): approach framing vs. avoidance framing. Trait rumination was examined as a continuous moderating variable. The main dependent variable

(DV) is the frequency of state rumination reported during thought probes. Secondary dependent variables are mood during the modified SART, and error rates for the modified SART.

Power analysis

G*Power calculated that with a medium effect size (Cohen, 1992), an alpha level of .05 and a power level of .80, a minimum of 64 participants (32 in each condition) will be required to detect a significant main effect in ANOVA corresponding to the test of the main hypothesis (Faul, Erdfelder, Lang, & Buchner, 2007) and a minimum of 55 participants will be required to detect sufficient power for the hierarchical regression interaction.

Participants

A total of 79 undergraduate students were recruited to the study from the University of Exeter, in return for course credit. Participants were randomly allocated to one of two groups using a random number generator. Requirements included normal or corrected to normal vision. Participants were excluded from the study if they scored above 10 on the PHQ-8, indicating a moderate-severe level of depression, due to the risk of the unresolved goal manipulation for already vulnerable persons. Of the 79 recruited, 75 completed the study in full: one participant was released early due to finding the rumination task distressing and three participants were excluded due to scoring above threshold on the PHQ-8. The study was approved by the University Of Exeter Department Of Psychology Ethics Committee (see Appendix A). Majority of participants were female (88%), the age range was 18 – 29 years with a mean age of 19.0 years (SD = 2.0).

Measures and materials

      The Patient Health Questionnaire (PHQ-8; Kroenke, Spitzer & Williams, 2009). The PHQ-8 is an eight-item questionnaire that assess the presence and severity of depressive symptoms over a period of two weeks. Scores range from 0 to 24, with higher scores representing increased severity of depression. Scores 5, 10, 15, and 20 represent mild, moderate, moderately severe, and severe depression, respectively. Similar to the PHQ-9, the diagnostic validity and reliability of the PHQ-8 has been well established, (Kroenke, et al., 2009) its only alteration being that it omits the ninth item on self-harm. Its shortness makes it a convenient measure to use. Reliability was calculated for the current data and showed adequate internal consistency (α = .70)

      Ruminative Responses Scale (RRS; Nolen-Hoeksema & Morrow, 1991). The RRS questionnaire is a 22-item measure of depressive rumination. Responses are indicated on a Likert scale ranging from 1 (*almost never*) to 4 (*almost always*) for what individuals "generally do" when they feel sad or depressed. Scored items are summed to generate an overall score, with higher scores indicating a greater tendency to depressive rumination. It has a high internal consistency, construct validity and good test-retest reliability (Nolen-Hoeksema & Morrow, 1991). Reliability was calculated for the current data and showed adequate internal consistency (α = .75)

      The Positive and Negative Affect Schedule (PANAS; Watson et al., 1988). The PANAS comprises two mood scales, measuring positive and negative affect. Ratings are provided on several different feelings and emotions using a Likert scale of 1 (*very slightly or not at all*) to 5 (*extremely*), with participants asked to rate how they feel 'right now'. The scale has strong test-

retest reliability and validity (Watson et al., 1988; Crawford & Henry, 2004).

Reliability has been shown to be good in the present study (α = .88).

Visual analogue mood scales. Visual analogue scales were used to assess current levels of sadness, tension and self-focus. Participants indicated on three bipolar scales ranging from 0 (*very happy*; *very calm*; *not at all focused on myself*) to 9 (*very sad*; *very tense*; *extremely focused on myself*) how they were feeling "at the present moment". This format have been found to be reliable and sensitive measures of current mood and self-focus (e.g., Roberts et al., 2013; Watkins & Teasdale, 2001, 2004).

Goal cueing task (Roberts et al., 2013). The goal cueing task was an adapted version of that used by Roberts et al., (2013). The task was piloted prior to testing in order to assess if the instructions were clear (e.g., individuals generated appropriate goals) and to evaluate the effectiveness of the materials in framing a goal in an approach or avoidant manner (Appendix L). Participants were instructed to identify an unresolved problem troubling them, causing them to feel sad, negative or stressed in the last week. Appropriate examples of problems were provided. Participants were then asked to identify and write down the goal that was being blocked by their identified problem. Subsequently, participants were directed to frame and think about the goal in one of two particular ways (depending on condition). Participants were instructed to generate a list (in no particular order) of either "the negative things that will happen if unsuccessful with the goal" (avoidance condition) or the "positive things that would not happen if unsuccessful with the goal" (approach). Participants then completed a ten minute goal focus period, which included a pre-recorded script via headphones to help guide them through focusing on the

problem. Each script was based on the condition: approach or avoidance (full protocol detailed in Appendix B).

For example:

"…Focus on the list you made of all the positive things that might not happen/ negative things might happen…What is it about this that bothers or troubles you the most? What would it mean if these positive things do not happen/ negative things happen...?"

All participants' written statements were coded for approach (mentioning a positive outcome that would not occur) and avoidance (mentioning a negative outcome that would occur) to check compliance with instructions. When a 20% random selection of participants' statements were coded by an independent rater, there was a high agreement between raters (к =.80). Disagreements were discussed following ratings and agreements on the codings were subsequently agreed.

Sustained attention to response task (SART; Robertson et al, 1997). The adapted SART uses a simple paradigm designed to place minimal demands on controlled processes, providing a valid means for assessing attentional lapses. It elicits a repetitive automatic style of responding to stimuli, thus increasing the likelihood of mind-wandering and therefore proclivity to ruminative thoughts about unresolved goals (Robertson et al., 1997). The SART presents participants with 900 neutral words, each presented for 300 ms followed by a 900 ms mask. Participants are instructed to respond to the word with a button press when presented in lowercase and to withhold a response when in uppercase (which occur randomly for one in eight words, on average). The task is comprised of two blocks (first halve and second halve), each presenting 450 trials of 45 words repeated ten times in differing order. After the

presentation of uppercase words, participants are pseudo-randomly probed about their focus of attention prior to the probe and asked to select one of six options: task, task performance, current physical state, problem identified before the task, other personal worries, other thought types (Roberts et al., 2013). The number of times that participants indicated that they were thinking about the problem identified before the task was the main dependent measure of rumination.

Procedure

Participants attended one session in a designated room in the Psychology department at the University of Exeter; they were given the information sheet and consent form at the start of the session. Following this they completed the PHQ-8, at this stage participants were screened out and five who scored above 10 were debriefed, awarded partial course credit and offered information on services available to provide support with depression and low mood (Appendix I). Participants who met this criterion then completed the RRS, and the first PANAS and visual analogue scales for sadness, tension and self-focus. Verbal and written instructions were provided for the goal cueing task and manipulation. Immediately following the completion of this, participants followed instructions, practised (10 trials) and completed the SART. After each thought probe during the SART, participants completed the visual analogue mood scales. The second PANAS measures and visual analogue scale

measures were taken following completion of the SART. Participants were verbally debriefed and provided with a written explanation to take away.

Step 1.

PHQ-8 Screening (Score +10 → Debrief and information provided about services)

↓

Step 2.

RRS completed, PANAS and Visual analogue scales

↓

Step 3.

Goal cueing task & goal rumination exercise

↓

Step 4.

SART task

↓

Step 5.

PANAS & Visual analogue scale
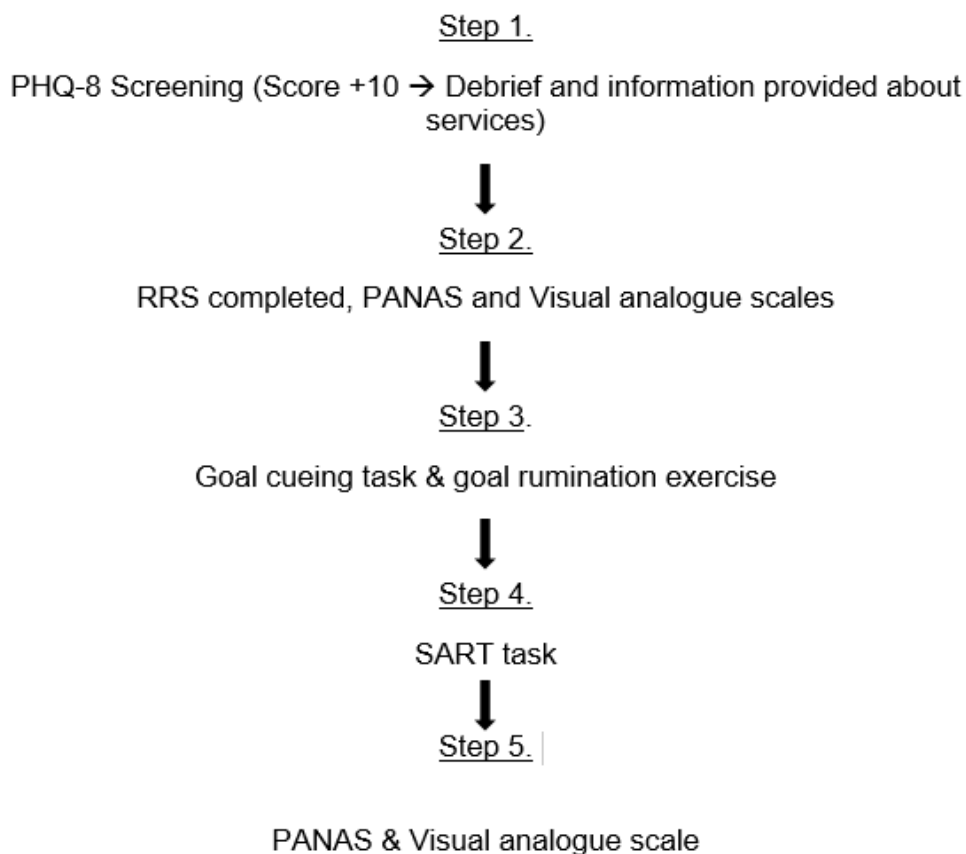
Figure 1. A flowchart illustrating the procedure.

Analytic Strategy

All variables were checked using histograms and Kolmogorov-Smirnov and Levene's tests, to determine that parametric assumptions of normality and homogeneity of variance were met. The majority of tests and inspection of histograms were consistent with an assumption of normality, and given the large sample size, assumptions of normality were considered robust enough for parametric testing. Where assumptions were not met, non-parametric alternative tests were used.

Independent *t*-tests and Mann Whitney U tests were used to examine differences between the conditions on demographic variables, baseline measures, trait measures, and mood ratings. A series of 2 (Condition: AP/ AV focus) x 2 (Time: pre and post manipulation) mixed ANOVAs were carried out with mood, tension and self-focus scores as the dependent variable to examine whether approach/avoidance condition differentially affected mood and self-focus. To test Hypotheses 1 and 2, a 2 (Condition: AP/AV focus) x 2 (Time: first half of SART, second half of SART) ANOVA was conducted on number of thoughts reported about the unresolved goal during the SART. Hypothesis 3 was tested using independent *t*-tests on the number of errors for each condition. To test Hypothesis 4, a hierarchical multiple regression predicting self-reported rumination was conducted, with trait rumination entered as a predictor in the first step and the interaction between condition and trait rumination entered in step two.

Results

Data screening

All screening and statistical procedures were performed on the data for the 75 participants. For the continuous data, outliers were detected by inspecting *z*-scores, descriptive data, and distributions using stem and leaf plots, and histograms. A total of 4 item outliers across measures and conditions were found (score ±3.29 *z*-scores) and removed. Due to experimental error at the beginning of the data collection, the initial 14 participants did not complete the visual analogue scales following the PANAS. Analysis was completed on these measures using the data available.

Participant characteristics

Participants' responses during the goal cueing task were analysed in order to assess the instructions had been followed accurately (e.g., participants had listed positive things that might not happen/negative things that might happen). The manipulation check established that 85.3% of the time, participants were thinking about and framing the goals as instructed. The checks indicated that 14.7% (AP: 8%; AV: 6.7%) of the time, participants had written mixed statements (e.g. a combination of positive things that wouldn't happen and negative things that would).

Table 1 presents descriptive statistics for measures across conditions. There were no significant differences between experimental conditions on demographic variables: age, $U = 631.5$, $z = -.43$, $p = .67$ and gender, $U = 656.0$, $z = -.43$, $p = .67$. There were no significant differences between the experimental conditions on trait measures of depression (PHQ-8), $t(67) = -0.56$, $p = .57$, rumination (RRS), $t(73) = -0.73$, $p = .47$. Baseline measures indicated no significant differences across conditions for levels of sadness, $t(56) = -.1.94$, $p= .057$, levels of tension, $t(56) = -1.35$, $p= .182$, and levels of self-focus, $t(56) = .146$, $p= .884$. No significant differences were found between conditions on baseline levels of happiness, $t(54) =-1.79$, $p= .079$, tension, $t(54) = -.1.25$, $p= .217$ and self-focus, $t(44.34) = .217$, $p=.829$ (equal variance not assumed). Significant differences were found between conditions for positive mood, with the approach condition scoring higher, (PANAS), $t(73) = 3.18$, $p= .002$ but no significant differences were found between conditions for negative mood (PANAS), $t(60.75) = -1.69$, $p= .094$ (equal variances not assumed) (see Table 1 for means and SD).

Table 1

Means, Standard Deviations (SD), and Frequencies for Demographic, Trait

Measures, and Baseline Variables for Unresolved Approach Goal (N= 38) and

Unresolved Avoidance Goal Conditions (N=37)

Variable	Approach		Avoidance	
	Mean	SD	Mean	SD
Age	18.8	1.5	19.19	2.4
Gender	F= 33; M= 5		F= 33; M= 4	
PHQ-8	4.1	2.9	4.3	3.1
RRS	47.4	11.9	49.8	16.0
PANAS Pos affect	29.2	8.7	23.4	7.0
PANAS Neg affect	15.2	4.6	17.61	7.7
Baseline Sadness	3.5	1.4	4.1	1.1
Baseline Self-focus	5.6	1.4	5.5	1.8
Baseline Tension	2.9	1.7	3.5	1.5

Sadness, tension and self-focus pre and post manipulation

Table 2 includes descriptive statistics for sadness, tension and self-focus before and after (taken from first probe during SART) the goal framing manipulation in both conditions. Sadness, tension and self-focus were compared before and after the manipulation with 2 (Condition: approach goal, avoidance goal) $\times$ 2 (Time: pre-goal manipulation, post-goal manipulation) mixed ANOVAs with repeated measures on the second factor.

For sadness, there was a main effect of time, with participants across conditions reporting a decrease in feelings of sadness post manipulation, $F(1, 51) = 13.24$, $p < .01$, $\eta p2 = .21$. There was no effect of condition on ratings of

sadness, $F(1, 51) = 2.39$, $p= .13$, $\eta p2= .045$, and no statistically significant interaction between condition and time, $F(1, 51) = 0.03$, $p = .87$, $\eta p2= .001$.

Similar results obtained for the mixed ANOVA on tension, demonstrating a main effect of time, $F(1, 50) = 12.45$, $p < .01$, $\eta p2 = .20$, with participants indicating an increase in feelings of tension post manipulation. There was no significant effect of condition, $F(1, 50) = 1.46$, $p = .24$, $\eta p2 = .03$, and no significant interaction between time and condition, $F(1, 50) = .05$, $p = .82$, $\eta p2 = .001$.

For the mixed ANOVA on self-focus, no significant effects were found across time, $F(1, 51) = 1.08$, $p= .30$, $\eta p2 = .02$; condition, $F(1, 51) = .37$, $p = .55$, $\eta p2 = .95$; and there was no significant interaction of time x condition, $F(1, 51) = .85$, $p = .36$, $\eta p2 = .02$.

Table 2.

Means and standard deviations for mood, tension and self-focus pre- and post-goal cueing manipulation

Measures	Pre Manipulation				Post Manipulation			
	Approach		Avoidance		Approach		Avoidance	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Sadness	3.50	1.36	4.08	1.16	4.58	1.60	4.97	1.40
Tension	2.93	1.70	3.46	1.47	4.64	2.10	4.82	1.88
Self-focus	5.63	1.35	5.54	1.90	5.06	1.69	5.38	1.95

Rumination and mood during the SART

Participants reported levels of sadness and rumination at various intervals throughout the SART task, which was separated into two halves. It was hypothesised that rumination would be higher in the avoidance condition and would be more persistent throughout the task than in the approach condition. A 2 (condition: approach, avoidance) x 2 (time: block 1, block 2) mixed ANOVA with repeated measure on the second factor was conducted on self-reported rumination and sadness. Results indicated no significant differences between conditions on rumination, $F(1, 64) = 0.50$, $p = .48$, $\eta p2 = .01$; no significant effect of time, $F(1, 64) = 2.83$, $p = .10$, $\eta p2 = .04$; and no significant interaction, $F(1, 64) = .56$, $p = .46$, $\eta p2 = .01$. Similar results were found for self-reported sadness throughout the SART, $F(1, 71) = 0.52$, $p = .47$, $\eta p2 = .007$, no significant effect of time, $F(1, 71) = 0.18$, $p = .68$, $\eta p2 = .002$; and no significant interaction between time and condition, $F(1, 71) = 1.49$, $p =$

.23, $\eta p2$ = .02. Thus, there was no support for the main hypothesis. Results are
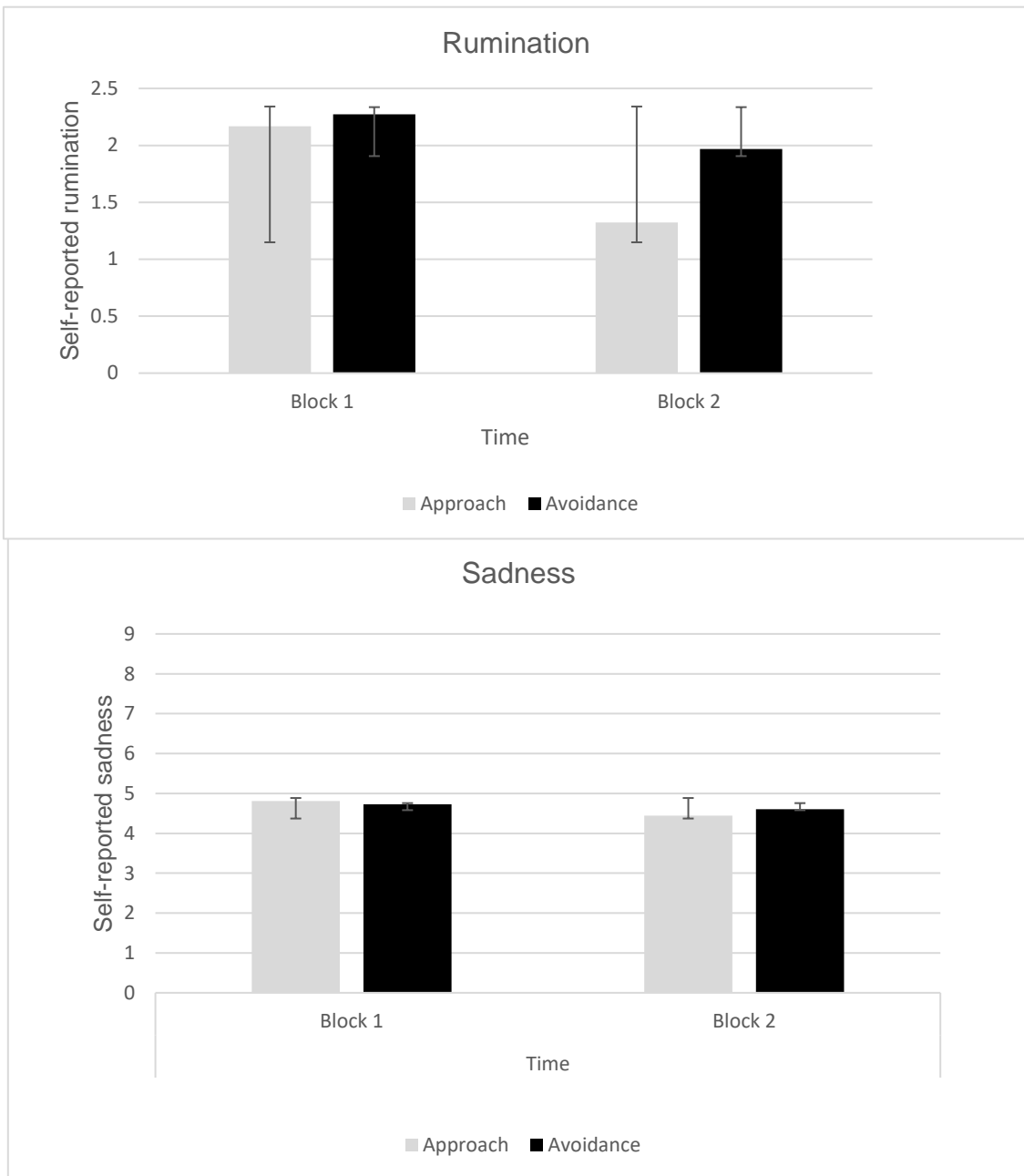
illustrated in Figure 2.

Figure 2. Mean self-reported rumination and sadness in each condition

during the SART. Error bars are standard deviations.

Performance during the SART

Table 3 illustrates the mean number of errors for each condition. An independent samples t-test was conducted in order to test whether goal conditions affected error rates on the SART. There were no significant differences between condition on the overall error rates throughout the SART, $t(66) = -1.69$, $p = .09$ (equal variances not assumed). In the absence of overall effect on errors, tests were not completed on differences in condition on errors of omission and commission separately.

Table 3.

Mean, standard deviations and mean error for performance during the SART

Condition	Correct omissions			Errors of commission			Errors of omission			Percentage of trials that were errors
	M	*SD*	*ME*	*M*	*SD*	*ME*	*Mean*	*SD*	*ME*	
Approach	9.4	7.5	1.2	90.6	7.5	1.2	64.9	118.0	19.7	16.8%
Avoidance	7.0	3.3	.57	91.1	11.1	1.9	53.7	54.1	9.0	15.3%

Affect

Table 4 presents descriptive statistics for positive and negative affect (PANAS) at baseline and after the SART. A within subjects t test was completed in order to assess whether positive and negative affect changed from baseline to the end of the SART within conditions. Results indicated a significant reduction in positive mood for the approach condition, $t(35) = 3.9$, $p <.001$, 95% CI [4.1, 12.7], and for the avoidance condition pre to post manipulation and SART PANAS measure, $t(33)$, 2.94, $p = .006$, 95% CI [.94, 5.2]. No significant

changes were found for measures of negative mood pre and post SART for the approach condition, $t(35) = -.71$, $p = .48$, 95% CI [-3.5, 1.7], and the avoidance condition, $t(33) = -.44$, $p = .66$, 95% CI [-2.3, 1.5].

Further between subjects t tests assessed any differences between conditions on measure of affect, post SART. Results indicated no significant differences between conditions for positive affect, $t(69)$, -.27, $p = .79$, 95% CI [-4.6, 3.5] and an approaching significant difference between conditions for negative affect, $t(69) = -1.95$, $p= .056$, 95% CI [-5.4, .01], with the avoidance condition scoring higher for negative affect than the approach condition.

Table 4.

Means and standard deviations of positive affect and negative affect across conditions, before and after the SART.

Measures	Time 1: Pre Manipulation				Time 2: Post SART			
	Approach		Avoidance		Approach		Avoidance	
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
PANAS_positive affect	29.2	8.8	24. 3	5.9	20.8	9.1	21.2	7.9
PANAS_negative affect	15.1	4.6	18.1	7.3	16.0	5.1	18.5	5.8

Brooding, reflection and state rumination

A hierarchical multiple regression analysis was conducted to test the hypothesis that trait rumination moderated the effect of condition on number of thoughts about the current concern (state rumination) in total across all trials. In the first step of the regression, we entered mean-centred trait rumination score

and condition (coded: -1 = approach, +1 = avoidance) as predictors of number of thoughts about the current concern across all trials. The interaction between condition and trait rumination was entered in step 2. Table 6 presents results of the analysis including significance of regression coefficients and tests of model fit. In Step 1, the predictors jointly explained 7.7% of the variance in the outcome, which was not statistically significant, $F(3, 65) = 2.72$, $p = .07$. The addition of the interaction between centred trait rumination and condition in the second step did not predict significant additional variance in the total number of thoughts about the current concern, $F(1, 64) = 1$, $p = .76$.

An additional hierarchical multiple regression analysis was conducted to test the hypothesis that trait rumination moderated the effect of condition on change in number of thoughts about the current concern from the first to second half of the SART table 6). In the first step of the regression, we entered mean-centred number of thoughts about the current concern identified in the first half of the SART, mean-centred trait rumination score and condition (coded: -1 = approach, +1 = avoidance) as predictors of number of thoughts about current concerns in the second half of the SART. The interaction between condition and trait rumination was entered in step 2. In Step 1, the predictors jointly explained 51.2% of the variance in the outcome, which was statistically significant, $F(3, 62) = 21.65$, $p = .001$. As shown in the table, number of thoughts about the current concern in the first half of the SART predicted significantly more thoughts about the current concern in the second half. Trait [1]rumination

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[1] A hierarchical multiple regression analysis was conducted to test whether trait rumination moderated the effect of condition on change in number of thoughts about other worries from the first to the second half of the SART. In the first step of the regression, we entered centred number

predicted a greater number of thoughts about the current concern in the second half of the SART, controlling for number of thoughts about the current concern in the first half, but condition did not. The addition of the interaction between centred trait rumination and condition in the second step did not predict significant additional variance in number of thoughts about the current concern in the second half of the SART, controlling for number of thoughts about the concern in the first half, change in $F(1, 61) < 1$, $p = .30$. Thus, although there was a slight decline in the number of thoughts about the current concern from the first to second half of the SART (descriptive in table 5), these declines were

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of thoughts about the other worries identified in the first half of the SART, centred trait rumination score and condition (coded: -1 = approach, +1 = avoidance) as predictors of number of thoughts about other worries in the second half of the SART. In Step 1, the predictors jointly explained 41.4% of the variance in the outcome, which was statistically significant, $F(3, 65) = 15.31$, $p = .001$. Similar to current concern, the number of thoughts about other worries in the first half of the SART predicted significantly more thoughts about other worries in the second half. The addition of the interaction between centred trait rumination and condition in the second step did not predict significant additional variance in number of thoughts about the other worries in the second half of the SART, controlling for number of thoughts about other worries in the first half, change in $F(1, 64) < 1$, $p = .36$. Thus, there was no significant difference in change in number of thoughts about the other worries across halves of the SART between the approach and avoidance condition, and the effect of condition on change in other worries was not significantly moderated by trait rumination. A hierarchical multiple regression on whether trait rumination moderated the effect of condition on overall other worries in the SART, coding approach and avoidance as above and including condition and centred trait rumination in step 1 and the rumination and condition interaction in step 2, found the predictors accounted for 6.6% of the variance in the outcomes, which was no statistically significant, $F(2, 66) = 2.35$, $p= .10$. The addition of the interaction between centred trait rumination and condition in the second step did not predict significant additional variance in number of thoughts about the other worries, $F(1, 65) = .16$, $p = .69$.

smaller for participants who scored higher on trait rumination. However, there was no significant difference in change in number of thoughts about the current concern across halves of the SART between the approach and avoidance condition, and the effect of condition on ruminative thoughts was not significantly moderated by trait rumination.

Table 5.

Means and standard deviations of participants focus during the SART

Variables	Approach		Avoidance	
	M	*SD*	*M*	*SD*
Focus on the task (T1)	8.5	4.8	7.5	5.8
Focus on the task (T2)	6.8	5.5	6.8	6.9
Focus on task performance (T1)	8.6	5.5	10.6	8.1
Focus on task performance (T2)	6.6	6.2	5.9	6.1
Focus on the current concern (T1)	2.2	2.5	2.3	3.5
Focus on the current concern (T2)	1.3	2.4	1.9	2.8
Focus on Other worries (T1)	1.9	2.5	1.5	2.4
Focus on Other worries (T2)	1.8	2.7	1.7	2.4

Table 6.

Hierarchical regression analysing effect of trait rumination, goal condition on total current concerns and trait rumination, goal condition and current concerns at time1 on current concerns at time 2.

	State rumination (across all trials)			State rumination (current concern (CC) Time 2)		
	B	*S.E.*	*β*	*B*	*S.E.*	*B*
Step 1						
Condition	.39	.60	.08	.43	.47	.08
RRSc	.05	.02	.26	.02	.02	.09
CC_Time1c	-	-	-	.61	.08	.68
Step 2						
RRS x Condition	.01	.05	.15[i]	.04	.04	.37

Table 7.

Correlation Matrix for Trait RNT, State RNT, Measures of depressive symptoms and (Pearson's Correlation Coefficient). Approach goal condition given above the line and avoidance goal condition given below the line.

	RRS	PHQ-8	PANAS_POS	PANAS_NEG	STATE RUMINATION
RRS	-	.04	.17	.08	-.34
PHQ-8	.049	-	-.05	.09	-.19
PANAS_POS	-.12	.25	-	-.11	-.14
PANAS_NEG	.09	.02	-.16	-	-.18
STATE RUMINATION	.22	-.04	.03	-.01	-

Discussion

The study tested the prediction that focusing on unresolved goals in an avoidance-focused manner would cause more subsequent rumination than focusing on unresolved goals in an approach-focused manner. Contrary to the hypotheses, an avoidance focus did not result in more reported thoughts about that goal when probed during a subsequent SART than an approach focus. Furthermore, trait rumination was not associated with overall levels of rumination during the SART, thus suggesting individual's level of trait rumination had no effect on levels of rumination during the task and this was not influenced by condition. There was some evidence that trait rumination was related to a more persistent level of rumination over time. That is, people higher in trait rumination showed less of a reduction in the number of thoughts they had about the current concern from the first to the second half of the SART. However, there was no effect of condition, i.e. goal type. Additionally, no differences were found between conditions on error rates during the SART. That being said, participants' correct omissions, withholding responses to press, were very low across both conditions. This could be attributed to mind-wandering across both conditions.

Results concerning sadness and tension found significant decreases in feelings of sadness and increased feelings of tension across conditions from pre to post manipulation. Results concerning affect, pre manipulation and post SART, indicated that both conditions declined in positive mood. Given that the approach condition were scoring significantly higher on positive affect prior to any manipulation, it is difficult to say whether this result is due to the manipulation or whether it is merely a regression to the mean. Similarly, as affect was not assessed immediately following the goal cueing and rumination,

it is unclear as to whether the decline in positive mood is a result of the manipulation or a possible effect of the SART task. Various explanations are explored in considering the lack of differences between approach and avoidant goal conditions.

The first explanation is that the goal framing manipulation did not affect state rumination. The results indicated that following the manipulation there were no significant differences on rumination during the SART. This was contradictory to Roberts et al., (2013) who found an impact of goal manipulation on thoughts about the concern. The explanation is further supported by a decrease in ratings of sadness and increase in tension, regardless of condition. This was contradictory to Roberts et al. (2013) and van Randenborgh et al., (2010), who manipulated unresolved goals and found an effect of rumination on task performance. Both studies found higher levels of sadness following the induction of state rumination, in contrast to the current studies' results of a reduction in sadness. This result is also unusual, concerning Higgins, Shah and Friedman's (1997) findings that individuals with approach orientation, who experienced failure, reported elevated levels of sadness. However, no measures were taken on the importance of the concerns, thus it could be argued that individuals focused on concerns that were not particularly bothersome. Sadness and tension were also not assessed immediately following the rumination exercise, in order to not disrupt the effects on the SART, thus reductions in feelings of sadness may have been a result of changing focus onto the SART task.

Changes in tension are somewhat in line with Carver & Scheier's (1998) control theory, which indicates insufficient goal progress generates negative

affect, however, it would be expected that the avoidance condition would produce higher levels of tension, whilst the approach higher levels of sadness. Carver & Scheier (1998) propose that when goal progress falls below certain criterion, then negative affect and effort increase, thus changes in tension across both conditions could be interpreted as indicating the effectiveness of the unresolved goal cueing procedure; state rumination has been shown to be associated with changes in mood (Nolen-Hoeksema, 1991). It is important to note that the cueing of an unresolved goal within the current study was immediately followed by the goal framing, thus the effects of each of these in isolation cannot be determined. It is therefore unclear as to whether the goal framing manipulation and rumination task had a direct, clear effect on state rumination

A second explanation is the way in which approach and avoidant goals were manipulated during the goal cueing task. Typically, approach and avoidance goals are often characterised as an action towards or away from an ideal state, this is parallel to a self- regulatory perspective of approach and avoidance goals (Higgins, 1998). The self-regulatory theory distinguishes between a concern with the presence or absence of positive outcomes or negative outcomes. Goals are considered as either accomplishment focused (parallel to approaching a desired state) or as safety focused (parallel to avoiding a negative state), and experienced as either the presence of positive outcomes (gains) or absence of positive outcomes (non-gains), the absence of negative outcomes (non-losses) or the presence of negative outcomes (losses) (Idson et al., 2000). The current study characterised its manipulation in a similar way – the occurrence of a negative outcome (avoidance) or the non-occurrence of a positive outcome (approach). There is evidence that focusing on not

attaining a positive outcome, produces emotions of sadness and focusing on experiencing a negative outcome, results in emotions of worry (see Higgins, 1998; Higgins, Grant, & Shah, 1999; Higgins, et al., 1997; Idson et al., 2000). However, given findings by Idson et al. (2000), that individuals indicated feeling better about not experiencing a positive outcome than experiencing a negative outcome, it was anticipated that a similar result would be yielded in the current manipulation.

This is similar to Carver & Scheier (1998) who propose that when goal progress falls below a certain criterion, then negative affect and effort increase. A vast amount of evidence has linked negative affect to doing poorly when approaching incentives (Carver & Scheier, 1998; Carver & Harmon-Jones, 2009b) and anxiety to avoidance. Higgins et al. (1997) found that individuals with an approach orientation who experienced failure reported elevated sadness. Similarly, research by Jones, Papadakis, Hogan, and Strauman (2009) examined the effects of rumination and failure to attain promotion goals (parallel to approach focus) on depressive symptoms. Results indicated an association between greater levels of promotion goal failure and increased depressive symptoms for individuals who engage in moderate to high levels of rumination. Similar results were found by Papadakis et al. (2006), who assessed levels of discrepancy between goals and ruminative responses in adolescents. The results of the study indicated that certain cognitive vulnerabilities (e.g., promotion goal failure) are problematic when combined with negative emotion and ruminative processing (Jones et al., 2009; Watkins, 2008). Thus, it could be argued that individuals who ruminate and perceive themselves as failing to attain goals may also be ruminating on past failure and the sadness evoked by their recognition of their failures- thus resulting in

greater risk or likelihood of experiencing depressive symptoms or negative affect (Lyubomirsky & Tkach, 2004; Robinson & Alloy, 2003). There is therefore the possibility that the manner in which the approach goal was framed, i.e., as a non-occurrence of positive outcome (in order to ensure equal focus on undesirable outcomes), influenced the non-significant differences between conditions. Interestingly though, in contrast to this, the current study found no effect of trait rumination on state rumination, though, again this may be a result of a non-clinical population, whom were not particularly high in trait rumination.

Additionally, given the above, it could be argued that participants' focus on unresolved goals, regardless of framing, are likely to induce feelings of negative affect and that this effect was stronger than the negative effects of approach and avoidance goals (Dickson & MacLeod, 2006). The current study did not employ the use of a control condition, adding a comparison "resolved" goal condition, which may have provided insight into this effect.

Another possible explanation for the lack of significant findings is the low level of depressive symptoms in the current sample. Previous studies that have found a significant difference between approach and avoidance goals (Dickson et al., 2011; Dickson & Moberly, 2013) but majority of those utilised a depressive sample, in which participant scored above a moderate level of depression. In the current study, the mean PHQ-8 score was at the low end of the mild depression category for both conditions. Although participants were asked to focus on a problem causing them to feel depressed and worried, were they not experiencing high level of depressive symptoms, it may not have had as great an impact on state rumination as it would in someone who was currently depressed.

An additional explanation is that the type of goal focus (approach vs. avoidance) does not affect state rumination. Perhaps, writing and focusing on positive/negative consequences is not sufficiently powerful and proves difficult to manipulate. Adding imagery may add more power to this process. It is also possible that participants already had clear approach/avoidance framing for the goals that they generated, which were difficult to change. This may be evident by the number of mixed statements generated. Furthermore, particular types of goal (particularly those on which people are more likely to report as being unresolved) may be more likely to encourage focus in an approach versus avoidance manner. These factors may have made it difficult to manipulate approach versus avoidance focus experimentally.

Whilst previous studies have manipulated approach/avoidance orientation, these were operationalised using experimental tasks with goals that are not already important to the participants (e.g., Lench & Levine, 2008; Norman & Aron, 2003). The absence of evidence for any difference in rumination between conditions means it is difficult to make any inferences about the relationship between rumination and approach and avoidance framing of unresolved goals.

Limitations

There are a number of limitations to be considered in the current study. Firstly, the sample consisted of majority female students, so it is unclear to what extent the findings can be generalised to a broader population. This is particularly of note, given that Winch et al. (2015) found associations between depressive symptoms and reduced intrinsic motives for approach goals were true for women only. In addition to this, rumination is of particular interest due to

its hypothesised role in depression, the current study used a non-clinical sample, and participants scoring too high on depressive symptoms were screened out. Therefore it is possible that the lack of significant findings was due to the nature of the sample, and stronger effects may be found in a clinical sample or those with high depressive and trait rumination. Considering manipulations of rumination have been shown to have different effects on non-depressed and depressed populations (Nolen-Hoeksema & Morrow, 1993), generalizability of these results to clinical populations would be difficult.

Another limitation of the study is that it did not employ a control group in which people focused on resolved goals, as used by Roberts et al., (2013). Future studies could utilise a similar design with the addition of a control group as a comparison, as discussed above. Furthermore, the status of English as a first or second language for participants was not assessed and it is unclear how much participants' verbal abilities may have impacted on the manipulation. An assumption was made about the level of English required for such a task and that an undergraduate population would meet sufficient levels to complete the task.

Despite the randomised experimental design, possible covariates including the intensity of motivation and the salience of goals were not adequately accounted for. The personal importance of a goal is an extremely influential factor and Carver and Scheier (1998) highlight how goals are hierarchical in nature, with goals higher up the hierarchy being of greater importance. As outlined in control theory, if goals are of greater importance to an individual, noticing the discrepancy will result in greater rumination. The importance of the goal to participants was not assessed in this study and could have played a factor in how bothersome focusing on said goal would have

been. Thus, there is a likelihood that participants focused on less important goals and therefore did not ruminate sufficiently for the manipulation to take effect. It is therefore possible that framing of an unresolved goal as either approach or avoidance in nature influences rumination, but only for goals higher in the hierarchy and of greater personal importance. Future studies could address this by utilising assessments of goal importance and bothersomeness ratings and including these variables as covariates in the analysis.

Furthermore, although difficult to guard against, motivational factors may have affected participants' performance on the SART task. As no measures of mood were provided between the goal framing manipulation task and the SART task, it is difficult to determine whether the SART task itself was influential on mood and reduced participants' motivation over time, or whether this could be attributed to the manipulation.

Clinical implications

Many therapeutic interventions for depression aim to increase approach focus in patients using behavioural and cognitive treatments (e.g., Jacobson et al., 2001). The success of such therapeutic interventions supports the utility of targeting approach deficits. Whilst aiming to increase approach goal pursuit and behaviour may be advantageous in that, over time, this may increase approach motivation, linked to positive affect and well-being, it may be less important in influencing rumination. Individuals who experience depression where rumination is an highly influential factor may be better off constructively focusing on the factors affecting the resolution of a goal, as opposed to the manner in which the consequences of goal (non)attainment are framed (e.g., approaching or avoiding some outcome). Thus, a clinical approach formulating and

understanding why a goal is difficult to achieve, why does it remain unresolved (as opposed to its framing) and then taking concrete solution focused steps to resolving the goal may be more successful. The current experiment was designed to equate the extent to which people focused on a problematic goal discrepancy, but focusing on goal non-attainment in therapy is unlikely to be constructive whether done in either an approach or avoidance mindset.

Reframing clients' goals, rather than the consequences of failing to attend them, may also be beneficial. For example, reframing a client's avoidance goal 'Stop being lazy' to the approach goal 'Walk for 30 minutes every day' allows people to specify the action steps necessary for behavioural enactment and activation (Roske et al., 2014). Finally, it is worth noting that, rather than merely being a consequence of goal discrepancy focus, rumination may also exacerbate the association between focusing on goal failure and depressive symptoms (Jones, et al., 2009). Thus, therapeutic efforts could focus simultaneously on reducing rumination and encouraging reflective thinking that serves to reduce goal discrepancies (Watkins et al., 2012).

Future directions

One clear alteration to the current design would be to repeat the study using a depressed population. The more entrenched patterns of rumination in this population (Watkins & Nolen-Hoeksema, 2014) might mean any effects from the goal cueing manipulation are sustained throughout the SART. A strength of the study was its manipulated focus on reasons for goal pursuit, which is a higher level in the goal hierarchy (Carver & Scheier, 1998) and which previous studies have found significant differences between approach and avoidance framing (Winch, et al., 2015). Future use of experimentally

attempting to manipulate reasons for goal pursuit should be utilised and could focus on strengthening the manipulation, through us of imagery or priming higher ranked, troublesome goals.

Summary

This experiment did not find a difference on state rumination or task performance following a manipulation of approach/ avoidance goal framing and trait rumination did not influence these results. Self-reported rumination did not differ between conditions throughout the experimental task and changes in tension could be explained by targeting unresolved goals. Future studies with depressed populations may demonstrate an effect of framing goals as either approach or avoidance on state rumination.

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Appendices

Appendix A. Ethics documentation

Relevant excerpt of ethics application

PROPOSAL TO ETHICS COMMITTEE – SCHOOL OF PSYCHOLOGY

Researchers: Leyanne Edwards (Trainee Clinical Psychologist) & Dr Nick

Moberly (supervisor)

1.   Descriptive Title of Project
Does approach vs. avoidance framing influence rumination cued by unresolved goals.

2.   **Purpose of project and academic rationale**
Previous research has found that individuals lower in mood and prone to depression are more likely to set avoidance goals, e.g. "I want to lose weight so I'm going to stop eating sugary food". Furthermore, rumination of goals increases when goals are unresolved. Correlational evidence suggests that people ruminate more about goals that they pursue for avoidance reasons (e.g., they pursue a goal because doing so avoids some negative consequence). This study aimed to investigate whether ruminating about unresolved avoidance goals would lead to higher rates ruminating over unresolved approach goals. Participants will complete several questionnaires at the start, during and end of the study. These include: the patient health questionnaire PHQ-8 (measuring depressive symptoms), the positive and negative affect schedule PANAS (measuring mood) and a ruminative response scale RRS (measuring rumination). The second task focuses participants attention on an unresolved goal and manipulates how they frame that goal, e.g. in either an approach or avoidant way. This task aimed to increase rumination about the goal. Additionally, a computer based task named the SART is completed. It is a well-established measure which detects subtle attentional lapses. Due to the repetitive automatic style of responding to the stimuli, there is an increased likelihood of mind-wandering and therefore the task will sensitively pick up on ruminative thoughts. Given that previous research has demonstrated increased rumination and lower mood in individuals who set and focus on goals in an avoidant way, it is hypothesised that individuals who were asked to think about their unresolved goal in an avoidance framework would demonstrate an increased level of ruminative thoughts.

3.   Methods and measurements
This study will utilise a between subjects design with one main independent variable: goal orientation (unresolved approach goals vs. unresolved avoidance goals). Participants will be asked to complete several questionnaires at the beginning, throughout and end of the study. They will also be asked to think about a problem that they haven't resolved, following this there will be a computer task. The study should take approximately 1 hour 15 minutes to complete.

Measurements include:

The Patient Health Questionnaire (PHQ-8): scale for measuring, screening and monitoring the severity of depression, specifically rating mood over the last two weeks.

The Positive and Negative Affect Schedule (PANAS): two mood scales, measuring positive and negative affect.

Ruminative Responses Scale (RRS): 22-item measure of depressive rumination.

Sustained attention to response task (SART): computer based task asking participants to respond to neutral words via button press.

Goal framing task: It will involve a focal framing exercise of the eliciting problem, where participants will be instructed on various tasks in either an approach-frame or avoidance-frame.

4.   Participants
An opportunity sample of students and staff from the University of Exeter will be primarily targeted, rather than a clinically depressed population.
The study will be conducted on campus and recruited via the online credit service (SONA). In the doubtful instance of insufficient numbers being recruited, members of the general public will be targeted via community based posters and online social networking sites. Due to the nature of the task individuals scoring within the moderate range of depressive symptoms (score of 10+) on the PHQ-8 will be excluded, for ethical reasons. 64 participants will be recruited in total.

5. Consent and participant information and debriefing
Intended information and consent forms and debrief attached.
6.   Ethical considerations
Given the nature of the task, some participants may find focusing on an unresolved goal psychologically distressing. Participants will be monitored throughout for signs of distress and 'checked in with', e.g. asking are you feeling okay over the course of the testing. Participants will also be reminded they have the right to withdraw and stop if wanted. Should participants demonstrate a high level of distress during the testing, a comical video clip will be shown to dissipate their distress before debriefing them and providing them with information regarding resources etc. They will also be offered the opportunity to ask any questions and discuss any issues with the researchers. The debrief form will contain further information about local support services they can access. Previous research has found that the effects of the unresolved goal manipulation are short-lived and do not last more than 15 minutes on average, the approximate time which will be given to the video and debrief procedure.

Ethical Approval system

Your application (2016/1233) entitled: Does approach vs. avoidance framing influence rumination cued by unresolved goals?, has been conditionally accepted

Please visit http://www.exeter.ac.uk/staff/ethicalapproval/

Please click on the link above and select the relevant application from the list. The conditions are as follows:

Please add the PEC Chair contact details to the Participant Information Sheet, as well as indicating that it has been approved by the Ethics Committee. Your Debrief form has a tick box for participants who would like more information about the study, indicating they will have to hand their debrief form back to the researcher - please do this on a separate form so that they can keep their debrief sheet.

Appendix B: Goal cueing task instructions

Approach condition:

Think of a problem or difficulty that is still unresolved and bothering you

The problem needs to be an ongoing and unresolved concern that has repeatedly been coming to your mind in the last week and causing you to feel sad, down, stressed or negative.

Example topics:

- An ongoing concern about an important relationship, which you feel that you should be managing better.

- A recent negative event and its impact upon how you have been feeling over the past few weeks.

- Concerns that you have failed to achieve a goal that is of personal importance to you.

* Feeling that you disappoint someone who means a lot to you

Spend a few minutes thinking of your problem. Please let the experimenter know when you have thought of one.

One way to think about problems is to think of them as blocks or obstacles to achieving a goal/ goals.

Thinking about the problem you have described, what is the main goals being blocked or threatened?

Please try to phrase the goal as a ***positive outcome you would like to achieve*** (rather than a negative outcome to avoid)

You have several minutes to write down on the sheet provided the <u>most important goal </u>that is threatened by your problem. Rephrase it a few times if needs be, until you think it has been most accurately summarised.

For example:

Problem:

       I under achieved on an assignment

OR   My partner isn't spending enough time with me

Main goal threatened:

       To do well in my degree

OR   To have a close relationship with my partner

Thinking of the goal that you have written on you sheet. Please now spend 2 minutes listing (in no particular order)

All THE POSITIVE THINGS THAT WOULD NOT HAPPEN IF YOU WERE UNSUCCESSFUL IN ACHIEVING THIS GOAL

So if you do not achieve your goal, what are the possible <u>POSITIVE</u> or <u>GOOD</u> things you might NOT experience or that might NOT happen?

Write down as many as you can in 2 minutes

Write each on a separate line

You don't have to write in complete sentences

For example:

Goal: To do well in my degree

Positive things that *would not happen* if unsuccessful:

- Feeling proud in front of peers

- Feeling good about own achievement

- Approval from parents/ lecturers

- Better job prospects

OR

Goal: To have a close relationship with my partner

Positive things that *would not happen* if unsuccessful:

- Being intimate with partner

- Enjoying a fulfilled relationship

- Sharing joint experiences

- Going on holiday together

- Living together

For the next 8 minutes I am going to ask you to dwell on the problem you identified in the way that you would usually dwell on and ruminate about unresolved concerns, as intensely as you can, until told to stop. You can either closer your eyes or focus you attention in the room

I would like you to particularly focus on:

THE POSITIVE THINGS THAT MIGHT NOT HAPPEN IF YOU ARE UNSUCCESSFUL WITH YOUR GOAL.

You will also listen to guided script whilst completing this task.

Avoidance condition:

Think of a problem or difficulty that is still unresolved and bothering you

The problem needs to be an ongoing and unresolved concern that has repeatedly been coming to your mind in the last week and causing you to feel sad, down, stressed or negative.

Example topics:

- An ongoing concern about an important relationship, which you feel that you should be managing better.

- A recent negative event and its impact upon how you have been feeling over the past few weeks.

- Concerns that you have failed to achieve a goal that is of personal importance to you.

* Feeling that you disappoint someone who means a lot to you

Spend a few minutes thinking of your problem. Please let the experimenter know when you have thought of one.

One way to think about problems is to think of them as blocks or obstacles to achieving a goal/ goals.

Thinking about the problem you have described, what is the main goals being blocked or threatened?

Please try to phrase the goal as a *positive outcome you would like to achieve* (rather than a negative outcome to avoid)

You have several minutes to write down on the sheet provided the <u>most important goal </u>that is threatened by your problem. Rephrase it a few times if needs be, until you think it has been most accurately summarised.

For example:

Problem:

       I under achieved on an assignment

OR   My partner isn't spending enough time with me

Main goal threatened:

       To do well in my degree

OR   To have a close relationship with my partner

Thinking of the goal that you have written on you sheet. Please now spend 2 minutes listing (in no particular order)

AII THE NEGATIVE THINGS THAT WOULD HAPPEN IF YOU WERE UNSUCCESSFUL IN ACHIEVING THIS GOAL

So if you do not achieve your goal, what are the possible <u>negative</u> or <u>bad</u> things you might experience or that might happen?

Write down as many as you can in 2 minutes

Write each on a separate line

You don't have to write in complete sentences

For example:

Goal: To do well in my degree

Negative things that would happen if unsuccessful:

- Feeling embarrassed in front of peers

- Feeling bad about own achievement

- Disappointed parents

- Less job prospects

OR

Goal: To have a close relationship with my partner

Negative things that would happen if unsuccessful:

- Feeling bad about the relationship

- Feeling unhappy

- Break-up

- Not speaking to each other

For the next 8 minutes I am going to ask you to dwell on the problem you identified in the way that you would usually dwell on and ruminate about unresolved concerns, as intensely as you can, until told to stop. You can either close your eyes or focus you attention in the room

I would like you to particularly focus on:

THE NEGATIVE THINGS THAT MIGHT HAPPEN IF YOU ARE UNSUCCESSFUL WITH YOUR GOAL.

You will also listen to guided script whilst completing this task.

Recorded script:

Note. Script for conditions (AP: positive things that might not happen; AV: negative thing might happen) indicated in [ ] brackets.

"*Think about the problem and difficulty – what is it? Focus on what about this problem/difficulty bothers and troubles you. Think about what is important about this difficulty in terms of your personal goals. Focus on how this problem reflects a lack of progress on important personal goals. Think about how the*

problem/difficulty is still unresolved. Concentrate on the aspects of the problem that reflect unfinished business. Focus on the aspects of the difficulty that repeatedly come to mind. Think about any unrelated concerns and unresolved issues this problem reminds you of.

I would now like you to look at your list that you made of all [the positive things that might not happen OR negative things that might happen] if you do not resolve this problem.

Focus on [what it is about these positive things that would not happen OR about these negative things] bothers or troubles you the most.

What would it mean for you if these [positive things do not happen OR negative things were to happen to you?]

Think about the consequences of these [positive things not happening OR negative things happening]

If you were unsuccessful at resolving your goal and the [positive things you listed did not happen- what would this mean about you? OR Negative things you listed were to happen- what would this mean about you?]

Refer back to your list and focus again on the [positive things that might not happen OR negative things that could happen] if you don't achieve your goal.

Spend a few more moments thinking about the [positive or good things that might not happen OR negative or bad things that you might experience] if you don't resolve the problem."

Appendix C: PHQ-8

Personal Health Questionnaire Depression Scale (PHQ-8)

Over the **last 2 weeks**, how often have you been bothered by any of the following problems? (*put an X in the box corresponding to **one** number on each line*)

How often during the past 2 weeks were you bothered by…

	Not at all (0)	Several days (1)	More than half the days (2)	Nearly every day (3)
Little interest or pleasure in doing things				
Feeling down, depressed or hopeless				
Trouble falling or staying asleep, or sleeping too much				
Feeling tired or having little energy				
Poor appetite or overeating				
Feeling bad about yourself, or that you are a failure, or have let yourself or your family down				
Trouble concentrating on things, such as reading the newspaper or watching television				
Moving or speaking so slowly that other people could have noticed. Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual				

Appendix D: Mood, Tension & Self-Focus Likert-Type Scales

1. Please rate, on a 1–9 scale, **how you are feeling right now**, where 1 = 'I feel very sad', 5 = 'I feel neither sad or happy' and 9 = 'I feel very happy'.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Very sad   Neutral mood   Very happy

2. Please rate, on a 1–9 scale, **how you are feeling right now**, where 1 = 'I feel very tense or aroused', and 9 = 'I feel very calm and relaxed'.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Very Tense/aroused   Neither calm nor tense   Very calm/relaxed

3 Please rate, on a 1–9 scale, **how you are feeling right now**, where 1 = 'I am not at all focused on myself', and 9 = 'I am extremely focused on myself'.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |

Not at all focused on myself   Extremely focused on myself

Appendix E: Ruminative response scale

Rumination Scale

People think and do many different things when they feel down, sad or depressed. Please read each of the items below and indicate whether you never, sometimes, often or always think or do each one when you feel down, sad or depressed. Please indicate what you *generally* do, not what you think you should do.

Write the number which corresponds to your answer next to each item

1 Almost Never   2 Sometimes   3 Often   4 Almost always

1. Think about how alone you feel
2. Think "I won't be able to do my job if I don't snap out of this"
3. Think about your feelings of fatigue and achiness
4. Think about how hard it is to concentrate
5. Think about how passive and unmotivated you feel
6. Analyse recent events to try and understand why you are depressed
7. Think about how you don't seem to feel anything anymore
8. Think "Why can't I get going"
9. Think "Why do I always react this way"
10. Go away by yourself and think about why you feel this way
11. Write down what you are thinking and analyse it
12. Think about a recent situation, wishing it had gone better
13. Think "Why do I have problems other people don't have?"
14. Think about how sad you feel
15. Think about all your shortcomings, failings, Faults and mistakes
16. Think about how you don't feel up to doing anything
17. Analyse your personality to try and understand why you are depressed
18. Go someplace alone to think about your feelings
19. Think about how angry you are with yourself
20. Listen to sad music
21. Isolate yourself and think about the reasons why you feel sad
22. Try to understand yourself by focusing on your depressed mood
23. Think "What am I doing to deserve this?"
24. Think "I won't be able to concentrate if I keep feeling this way"
25. Think "Why can't I handle things better?"

Thank you for filling in this questionnaire

Appendix F: The Positive and Negative Affect Schedule

This scale consists of a number of words that describe different feelings and emotions. Read each item and then list the number from the scale below next to each word. Indicate to what extent you feel this way right now, that is, at the present moment **OR** indicate the extent you have felt this way over the past week (*circle the instructions you followed when taking this measure*)

Very Slightly or Not at All (1), A Little (2), Moderately (3), Quite a Bit (4), Extremely (5)

_____ 1. Interested	_____ 11. Irritable	_____ 21. Sad
_____ 2. Distressed _	_____ 12. Alert	_____ 22. Depressed
_____3. Excited	_____ 13. Ashamed	
_____ 4. Upset	_____14. Inspired	
_____ 5. Strong	_____ 15. Nervous	
_____6. Guilty	_____16. Determined	
_____ 7. Scared	_____17. Attentive	
_____ 8. Hostile	_____ 18. Jittery	
_____9. Enthusiastic	_____ 19. Active	
_____ 10. Proud	_____20. Afraid	

Appendix G: Information Sheet

Name of department: School of Psychology, College of environmental and life sciences
Title of the study: Do our thinking styles affect our goals?

Thank you for your interest in this study. My name is Leyanne Edwards, I am a postgraduate clinical psychology student at the University of Exeter. This study aims to investigate the relationship between unresolved goals and thinking style.

I would like to invite you take part in this study but before you decide whether or not you would like to participate, please read this information sheet carefully. Please feel free to ask any further questions after reading this information sheet. If you are happy to take part then please read and sign the consent form.

What is involved? Should you choose to take part, you will meet with the researcher on the Streatham campus. You will initially be asked to complete questionnaires, the first will ask you questions around depression and the second around mood and third around rumination. You will then be asked to complete a task where you will generate a goal or problem that is unresolved and spend some time thinking about this goal. Following this, you will complete a simple computer based task in which you will respond to stimuli presented on the screen by pressing keys. Before finishing you will be asked to repeat the 2nd questionnaire related to mood. The study should take approximately 1 hour 15 minutes to complete.

Confidentiality. All your personal details will be kept confidential and stored in a secure place, and when the results from the studies are written up, it will not include your name or any other identifiable information, just information about the range of participants in the studies, such as average age, gender and the results of questionnaires and tasks.

Do I have to take part? It is completely up to you whether or not you take part. If you decide you would like to take part, please contact us via the below details and we will arrange a timeslot for you to visit us at the psychology department (Washington Singer Laboratories). If you decide to take part, you will still be able to end your participation at any time, without having to give a reason, and without incurring any penalty.

Are there any risks? Taking part in these studies will require you to think about an unresolved goal for a short period of time. There is a chance that this may make you feel slightly sad or preoccupied, but other research has shown that this is only temporary for most people. You will however be given the opportunity to discuss this with the researcher, who is a trainee clinical psychologist and would direct you to sources of support if you find any of the tasks upsetting.

Are there any benefits? By taking part in these studies you would be helping us build the evidence on the relationship between mood and particular thinking styles which could contribute to interventions for mood disorders being developed in the future.

Where will the results be shown? We both aim to publish our results in academic journals. If you wish, we can provide you with information about the main results of the research projects. Again, your personal details will not be revealed in any publication or report.

Ethical approval has been sought and approved by the University of Exeter Psychology ethics committee. If you have any concerns about ethical aspects of the study, please contact Dr Lisa Leaver, Chair of the Psychology Ethics Committee: l.a.leaver@ex.ac.uk

Contact details:
If you would like to participate in the study, or for further information, please e-mail the researcher at: lt335@exeter.ac.uk .

Appendix H: Consent Form

INFORMED CONSENT FORM

Title of research: Personal goals, mood and rumination.

Investigators: Leyanne Edwards, supervised by Dr Nick Moberly (Senior Lecturer). Research is affiliated with the University of Exeter.

Purpose of research: The purpose of this study is to examine the relationship between goals and thinking styles.

Description of procedures: Should you choose to take part the study will take part at the University of Exeter in the Washington Singer Building (Streatham Campus). You will be asked to complete several questionnaires at the beginning of the study and later on. You will also be asked to think about a problem that you haven't resolved, following this there will be a computer task. The study should take approximately 1 hour 15 minutes to complete. Please be aware that being asked about unresolved personal goals may cause you to feel slightly upset for a short period; if you do not wish to continue or are not comfortable answering any questions, you can withdraw from the study at any time without penalty.

Supervised by: Dr Nick Moberly

Now please read the following statements and only sign this consent form if you understand and agree with them:

Please tick [ ]   I have read and understood the information sheet, and have had the chance to ask questions about the study.

Please tick [ ]   I understand that my participation in this study will be completely anonymous; my name will not and cannot not be used in connection with the results in any way.

Please tick [ ]   I understand that I am free to withdraw my participation at any time during the study and for any reason, and without penalty; I can do this by alerting the experimenter.

Please tick [ ]   I understand that I can chose to withdraw my data at a later date. I will need to provide the researcher with my participant number to do this as it will not be connected to my name in any way. The deadline for doing this is **1st March 2017**.

Please tick [ ]   I understand that after the study has been completed all data will be archived and stored in accordance with the

University's Open Access Policy. This means that data will be made available to other post-graduate researchers. However, my data will remain anonymised so that it cannot be linked to my name.

BY SIGNING THIS FORM YOU ARE CONFIRMING YOUR AGREEMENT WITH THE ABOVE STATEMENTS AND GIVE YOUR CONSENT TO CONTINUE.

Signature...

Participant number.......................... (**Please remember this number** as the only way you can withdraw your data at a later date, should you wish to do so, is if you provide your participant number).

Age..

Gender...

Appendix I: Debrief

PARTICIPANT DEBRIEFING FORM

Thank you for taking part in this study. The purpose of this study is to investigate the effect of different types of thinking about unresolved personal goals, mood and rumination (repetitive thinking).

Previous research has found that individuals lower in mood and prone to depression are more likely to set avoidance goals, e.g. I'm going to stop eating sugary food. Furthermore, rumination of goals increases when goals are unresolved. Correlational evidence suggests that people ruminate more about goals that they pursue for avoidance reasons (e.g., they pursue a goal because doing so avoids some negative consequence). This study aimed to investigate whether ruminating about unresolved avoidance goals would lead to higher rates ruminating over unresolved approach goals.

The questionnaires you completed at the beginning and throughout measure your current mood and levels of rumination. The second task focused your attention on an unresolved goal and manipulated how you framed that goal, e.g. in either an approach (thinking about positive things that would not happen if you did not resolve the goal) or avoidant (thinking about negative things that would happen if you did not resolve the goal) way. This task aimed to increase your rumination about your goal. Additionally, the computer task you completed is a well-established measure which detects subtle attentional lapses. Due to the repetitive automatic style of responding to the stimuli, there is an increased likelihood of mind-wandering and therefore the task will sensitively pick up on ruminative thoughts.

Given that previous research has demonstrated increased rumination and lower mood in individuals who set and focus on goals in an avoidant way, it was hypothesised that individuals who were asked to think about their unresolved goal in an avoidance framework would demonstrate an increased level of ruminative thoughts.

If you have any concerns about ethical aspects of the study, please contact Dr Lisa Leaver, Chair of the Psychology Ethics Committee: l.a.leaver@ex.ac.uk

If you feel distressed as a result of taking part in this study we recommend that you contact one of the following helplines:

STUDENT COUNSELLING SERVICE

The Counselling Service is available free of charge to all students, full-time, part-time, undergraduate and postgraduate. Because student life can be stressful, the Counselling Service is there to provide confidential help and support. We aim to help students cope more effectively with any personal problems or emotional difficulties that may arise during their time at University.

Telephone (to book an appointment): (01392) 264381

Email: counselling@exeter.ac.uk

Website: http://services.exeter.ac.uk/counselling/about.html

Student Counselling Service (opening hours: 9.30 – 1.00pm, 2 – 5pm)
Reed Hall, Hailey Wing
Streatham Drive
Exeter EX4 4PD

VOICE (University of Exeter)

Voice is a student run listening and information service, run by students for fellow students at the University of Exeter and is available from 8pm to 8am every night during term time. It is completely confidential, anonymous and prejudice-free, which means you can call with the confidence of knowing you can discuss anything you want without being judged.

Telephone (8pm – 8am): 4000 (internal, free of charge)
External: (01392) 275284
Website: http://www.exetervoice.co.uk/

EXETER SAMARITANS

Samaritans provides confidential emotional support, 24 hours a day for people who are experiencing feelings of distress or despair. Samaritans are there if you're worried about something, feel upset or confused, or you just want to talk to someone.

10 Richmond Road
Exeter
Devon
EX4 4JA (open 10.30am – 9.30pm Mon–Sat, 1.30pm – 9.30pm Sun)

24 hour telephone helpline: 01392 411711 (Exeter branch) / 08457 909090 (national)

Email: jo@samaritans.org

Website: http://www.exetersamaritans.org/

DEPRESSION ALLIANCE

Depression Alliance are a charity working to relieve and to prevent depression by providing information, support and understanding. Depression Alliance offer a range of publications and self-help groups.

Depression Alliance
20 Great Dover Street
London
SE1 4LX

Telephone: 0845 123 23 20 (for an information pack only)

Email: information@depressionalliance.org

Website: http://www.depressionalliance.org/

Alternatively, and/or if you have any further questions please contact either myself, or my supervisor.

Leyanne Edwards: lt335@exeter.ac.uk

Nick Moberly: N.J.Moberly@exeter.ac.uk

Appendix J: Dissemination Statement

Dissemination Statement

I will use the following dissemination strategy to ensure that the findings of this research are shared with interested parties.

University of Exeter Doctorate in Clinical Psychology

This thesis will be submitted as part of the requirements of the doctorate programme.

Wider Academic and Clinical Community

I will be presenting to Trainee Clinical Psychologists, staff and other interested parties at the University of Exeter in June 2017.

As per ethical approval, participants who provided an email address on their consent form and requested a copy of the results will be sent a summary of the study findings.

I intend on submitting a reduced research paper for publication in a peer-reviewed journal (Emotion & Cognition).

Appendix K: Instructions for authors for Cognition and Emotion

Manuscript preparation
1. General guidelines
☐ This journal accepts full articles, brief reports, and Registered Reports of Replication (RRR) studies. The Journal also considers theoretical papers and literature reviews as long as these form a major contribution to our understanding of the interplay between emotion and cognition.

☐ Manuscripts are accepted in English. British English spelling and punctuation are preferred. Please use double quotation marks, except where "a quotation is 'within' a quotation". Long quotations of 40 words or more should be indented with quotation marks.

☐ **Full Articles:** A full article will not exceed 8000 words including references, but excluding tables, captions, footnotes and endnotes. Manuscripts that greatly exceed this will be critically reviewed with respect to length. Authors should include a word count with their manuscript.

☐ **Brief Reports:** Manuscripts that describe the findings of one experiment should typically be submitted as a Brief Report. The main text of a brief report should contain no more than 4000 words and should include a maximum of 2 tables or figures and 25 references.

☐ **Registered Reports of Replication (RRR) Studies**: Registered Replication Reports are manuscripts describing the findings of a study designed to directly or conceptually replicate empirical findings published previously.

Unlike the more conventional process where a full report of empirical research is submitted for peer review, RRRs can be considered as proposals for empirical research, which are evaluated on their merit prior to the data being collected. For information on how to prepare Registered Reports of Replication (RRR) submissions see: http://explore.tandfonline.com/page/beh/pcem-registered-reports-of-replication-studies/pcem-rrr-instructions-for-authors.

☐ The style and format of the typescripts should conform to the specifications given in the *Publication Manual of the American Psychological Association* (6th ed.).

☐ All parts of the manuscript should be double-spaced, with margins of at least one inch on all sides. Number manuscript pages consecutively throughout the paper.

☐ Manuscripts should be compiled in the following order: title page; abstract; keywords; main text; acknowledgements; references; appendices (as appropriate); table(s) with caption(s) (on individual pages); figure caption(s) (as a list).

☐ **Title page** . This should contain only: (1) the title of the paper and a shortened version of the title suitable for the running header (not exceeding 40 character spaces) (2) the name, affiliation, email address, postal address and telephone number of all authors (please identify the corresponding author); (3) funding and grant-awarding body acknowledgements.

☐ **It is a condition of submission that authors fully disclose details of their data collection and data analysis.** Upon submission, authors will be

equired to confirm that they adhere to the following statement, and should include this or a similar statement in the methods section: "We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study".

☐ Abstracts of 100-150 words are required for all manuscripts submitted.

☐ Each manuscript should have to 5 keywords.

☐ Search engine optimization (SEO) is a means of making your article more visible to anyone who might be looking for it. Please consult our guidance here.

☐ Section headings should be concise and should not contain numbering.

☐ All authors of a manuscript should include their full names, affiliations, postal addresses, telephone numbers and email addresses on the title page of the manuscript. One author should be identified as the corresponding author. Please give the affiliation where the research was conducted. If any of the named co-authors moves affiliation during the peer review process, the new affiliation can be given as a footnote. Please note that no changes to affiliation can be made after the manuscript is accepted. Please note that the postal and email address of the corresponding author will normally be displayed in the article PDF and the online article.

☐ All persons who have a reasonable claim to authorship must be named in the manuscript as co-authors; the corresponding author must be authorized by all co-authors to act as an agent on their behalf in all matters pertaining to publication of the manuscript, and the order of names should be agreed by all authors.

☐ Biographical notes on contributors are not req

Please supply all details required by any funding and grant-awarding bodies as an Acknowledgement on the title page of the manuscript, in a separate paragraph, as follows:
o *For single agency grants:* "This work was supported by the [Funding Agency] under Grant [number xxxx]."

o *For multiple agency grants:* "This work was supported by the [Funding Agency 1] under Grant [number xxxx]; [Funding Agency 2] under Grant [number xxxx]; and [Funding Agency 3] under Grant [number xxxx]."

☐ Authors must also incorporate a Disclosure Statement which will acknowledge any financial interest or benefit they have arising from the direct applications of their research.

☐ **Tables** should be kept to the minimum. Each table should be typed double spaced on a separate page, giving the heading, e.g., "Table 2", in Arabic numerals, followed by the legend, followed by the table. Make sure that appropriate units are given. Instructions for placing the table should be given in parentheses in the text, e.g., "(Table 2 about here)".

☐ **Results** of statistical tests should be given in the following form: "... results showed an effect of group, $F(2, 21) = 13.74$, $MSE = 451.98$, $p < .001$, but there was no effect of repeated trials, $F(5, 105) = 1.44$, $MSE = 17.70$, and no interaction, $F(10, 105) = 1.34$, $MSE = 17.70$." Other tests should be reported in a similar manner to the above example of an F-ratio. For a fuller explanation of statistical presentation, see the *APA Publication Manual.*

☐ **Abbreviations** that are specific to a particular manuscript or to a very specific area of research should be avoided, and authors will be asked to spell out in uired for this journal.

full any such abbreviations throughout the text. Standard abbreviations such as RT for reaction time, SOA for stimulus onset asynchrony or other standard abbreviations that will be readily understood by readers of the journal are acceptable. Experimental conditions should be named in full, except in tables and figures.

☐ **Footnotes** should be avoided unless absolutely necessary. Essential footnotes should be indicated by superscript figures in the text and collected on a separate page at the end of the manuscript.

☐ For all manuscripts non-discriminatory language is mandatory. Sexist or racist terms must not be used.

☐ Authors must adhere to SI units. Units are not italicised.

☐ When using a word which is or is asserted to be a proprietary term or trade mark, authors must use the symbol ® or TM.

☐ Authors must not embed equations or image files within their manuscript

2. Style guidelines

☐ Description of the Journal's reference style.

☐ Guide to using mathematical scripts and equations.

3. Figures

☐ Please provide the highest quality figure format possible. Please be sure that all imported scanned material is scanned at the appropriate resolution: 1200 dpi for line art, 600 dpi for grayscale and 300 dpi for colour.

☐ Figures must be saved separate to text. Please do not embed figures in the manuscript file.

Files should be saved as one of the following formats: TIFF (tagged image file format), PostScript or EPS (encapsulated PostScript), and should contain all the necessary font information and the source file of the application (e.g. CorelDraw/Mac, CorelDraw/PC).

☐ All figures must be numbered in the order in which they appear in the manuscript (e.g. Figure 1, Figure 2). In multi-part figures, each part should be labelled (e.g. Figure 1(a), Figure 1(b)).

☐ Figure captions must be saved separately, as part of the file containing the complete text of the manuscript, and numbered correspondingly.

☐ The filename for a graphic should be descriptive of the graphic, e.g. Figure1, Figure2a.

Appendix L: Pilot Study

A pilot of materials was completed prior to the finalised experimental study. The pilot aimed to test the following:

1. That the goal cueing task elicited the right responses from participants (e.g. participants correctly framed goals as approach or avoidance)
2. The goal cueing task instructions were understood

A total of six participants were recruited from the University of Exeter (four Female, two Male) and were randomly assigned to the approach or avoidance condition.

Participants generated a similar number of statements (Mean= 5) and followed instructions accordingly. None of the participants generated mixed or incorrect statements (e.g., wrote a positive thing that wouldn't happen rather than a negative thing that would happen) according to their condition.

Additional qualitative feedback was taken from participants, which included:

- Was the task clear?
- Did you (*participant*) notice an effect of the rumination task on mood?

Participants indicated that the task was clear, however, one participant in the approach condition stated that:

"It was hard to figure out initially what was being asked, as I had to reframe the problem slightly in my head"

It was also noted by participants that whilst the rumination task was having a noticeable effect on mood and thoughts, that the verbal instructions (provided via headset) could have been clearer to keep focus on the task.

As a result, the script recording was altered as part of the final experimental procedure.

Previous script:

"For the next eight minutes I am going to ask you to close your eyes and focus your attention on the problem you identified. I would like you to particularly focus on

Avoidance*: The negative things that will happen if you are unsuccessful with your goal.*

Approach: The positive things that will not happen if you are unsuccessful with your goal

Please close your eyes and dwell on this current problem or concern, in the way that you usually dwell on and ruminate about unresolved concerns, as intensely as you can, until I ask you to stop and to open your eyes."

[Recorded script items: Think about the problem and difficulty – what is it? Focus on what about this problem/difficulty bothers and troubles you. Think about what is important about this difficulty in terms of your personal goals. Focus on how this problem reflects a lack of progress on important personal goals. Think about how the problem/difficulty is still unresolved.

Think about the negative things that will happen by not resolving this problem.

Think about the positive things that won't happen by not resoling this problem.

Concentrate on the aspects of the problem that reflect unfinished business. Focus on the aspects of the difficulty that repeatedly come to mind.

If this problem is not resolved, consider the negative things that will happen.

If this problem is not resolved, consider the positive things that won't happen

Think about any related concerns and unresolved issues that this problem reminds you of. "