Brief Reminiscence Activities Improve State Well-Being and Self-Concept in Young Adults: A Randomised Controlled Experiment

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Abstract

Reminiscence-based psychotherapies have been demonstrated to have robust effects on a range of therapeutic outcomes. However, little research has been conducted on the immediate effects of guided activities they are comprised of, or how these might differ dependent on the type of reminiscence. The current study utilised a controlled experimental design, whereby three-hundred and twenty-one young adults (mean age = 25.5 years, $SD = 3.0$) were randomised to one of four conditions of online reminiscence activity: problem-solving (successful coping experiences), identity (self-defining events contributing to a meaningful and continuous personal identity), bitterness revival (negative or adverse events), or a control condition (any memory from their past). Participants recalled autobiographical memories congruent with the condition, and answered questions to facilitate reflection on the memories. The results indicated that problem-solving and identity reminiscence activities caused significant improvements in self-esteem, meaning in life, self-efficacy and affect, whereas no effects were found in the bitterness revival and control conditions. Problem-solving reminiscence also caused a small effect in increasing perceptions of a life narrative/s. Differences between the conditions did not appear to be explained by the positive-valence of memories. These results provide evidence for the specific effects of adaptive types of problem-solving and identity reminiscence in young adults.

Keywords: reminiscence therapy; cognitive-reminiscence therapy; autobiographical memory; young adults; well-being; self-concept

Autobiographical memory (AM) is a memory system of personally-experienced past events which integrates episodic (experiences from particular places and times) and semantic memory (relevant knowledge and facts about the world). AM serves a range of purposes essential to adaptive psychological functioning, including maintaining a coherent sense of self and self-continuity (Bluck & Habermas, 2000), social-bonding to improve interpersonal relationships (Alea & Bluck, 2003), and self-directive purposes in problem-solving (Pillemer, 2003). In a clinical and counselling context, reminiscence-based therapy is one form of intervention that focuses on the retrieval of AMs, as well as reflection on their content. The process and outcomes of retrieving AMs of personally significant experiences are considered in relation to their adaptive value and the psychosocial needs of clients. Change is produced through various reminiscence activities that promote positive and adaptive views of the self, while also mitigating or re-construing negative experiences. A recent meta-analysis of 93 controlled outcome studies by Pinquart and Forstmeier (2012) showed that reminiscence-based therapies produce significant effects on a range of therapeutic outcomes. For example, they reported controlled effects of a moderate size for depressive symptoms, which were also maintained at follow-up (across 23 samples), and large effects when samples were comprised of participants who were clinically depressed (across 23 samples). Other positive outcomes included moderate effect sizes for improved mastery, purpose in life, and social integration. It is noteworthy that the large majority of outcome studies have utilised older adult populations. Despite this robust evidence for the effectiveness of courses of reminiscence-based therapies, the specific, causal effects of isolated reminiscence activities, of which these treatments are comprised, remain relatively

understudied.

One particular type of reminiscence-based therapy, formulated by Watt and Cappeliez (1995), is cognitive-reminiscence therapy (CRT). As an integrative therapy, CRT draws on stress and coping (Billings & Moos, 1985) and cognitive therapy (Beck, 1976) models of depressive psychopathology, and utilises guided, adaptive reminiscence as a means of intervention. A series of trials have demonstrated that CRT produces typically large effects on depressive symptoms (Cappeliez, 2002; Karimi et al., 2010; Shellman, Mokel, & Hewitt, 2009; Watt & Cappeliez, 2000). Reductions in depressive symptoms as a result of CRT is postulated to occur via the effects that reminiscence for past problem-solving and identity cohesion purposes has on an individual's self-concept and well-being (Watt & Cappeliez, 1995, 2000). The guided recalling and reviewing of these types of personal memories is thought to represent an adaptive process that can enhance self-concept and improve well-being, whilst also balancing or redressing dysfunctional or unhelpful views of the self. Some research has provided evidence for these processes, with more frequent reminiscing for these adaptive purposes found to be associated with higher reported self-esteem, meaning in life, self-efficacy, adaptive coping, and optimism (Cappeliez & Robitaille, 2010; *blinded for review*). Although these studies support this model of change in CRT, they are correlational in nature and pertain to the frequency with which individuals reminisce for these purposes in general. As such, they have limited capacity to delineate the immediate, in-situ effects of actually engaging in adaptive reminiscence of these types.

It is likely that the way in which individuals engage with their AM varies a great deal, and differences in how AMs are reflected on are likely to influence any effects on

self-concept and well-being. These differences in how memories are reflected on affect the potential for adaptive reinforcement, editing, or re-framing of narratives about the self and one's life (e.g., Beck, 1976; White, 2007; Wilson, 2011). For example, whether or not the emotional valence of an AM is explicitly considered, the significance of a self-defining AM in a person's broader life, and what the person might infer about themselves when evaluating the AM may all affect self-concept and well-being differentially. In CRT individuals are explicitly guided to reflect on and review AMs. Given this, to test the specific casual effects of guided, adaptive reminiscence, experimentally controlled designs are indicated.

Another question of interest pertains to the differential effects that types of reminiscence might have on self-concept and well-being. Research has indicated that the various functions of AM do appear to have different psychological correlates (Westerhof, Bohlmeijer, & Webster, 2010), and therefore would be expected to have different outcomes. For instance, when an individual recalls a time they successfully coped with adversity a perception of themselves as being efficacious and able to overcome challenges may be activated and strengthened. Alternatively, the recall of self-defining events that shaped the development of one's identity may increase perceptions of meaning and purpose in life. Indeed, processes such as these appear to mediate the effects on depression found in other reminiscence-based therapies (e.g., Korte, Westerhof, & Bohlmeijer, 2012; Westerhof, Bohlmeijer, van Beljouw, & Pot, 2010). Alternatively, when recalling a negatively-valenced memory an individual may experience a more negative self-concept and associated negative well-being. Hypotheses such as these remain to be tested in a controlled context wherein different types of reminiscence can be

compared for their relative effects. Knowledge of these effects would further clarify the model of change underpinning CRT. Moreover, identifying the outcomes of reminiscence activities would allow therapists to increase the specificity of treatment through utilising reminiscence in ways congruent with therapeutic goals.

As noted above, research into reminiscence interventions has predominantly focused on older adults. This is despite the fact that reminiscence is equally frequent across the lifespan (e.g., Webster, 1993, 1994), and evidence to date suggests that reminiscence-based therapies do not appear to have differential effects based on age (Pinquart & Forstmeier, 2012). *blinded for review* draw on cognitive, developmental and clinical evidence to argue that utility of these interventions should be equally generalisable to younger adults, and yet studies testing this proposal are distinctly lacking. Given this, young adults (18-30 years) were the demographic of interest in this study. This allowed for testing of the effects of reminiscence activities within this age as a “proof of concept” exercise.

The current study aimed to examine the effects of specific reminiscence activities in young adults, and whether these outcomes differed on the basis of the type of reminiscence in which individuals engaged. The effects of two specified types of reminiscence, both of which are utilised in CRT, were the focus of the study: one pertaining to past problem-solving attempts (problem-solving) and one pertaining to self-defining events contributing to a meaningful and continuous personal identity (identity). These reminiscence types are identified in several taxonomies, albeit with differing labels, and are generally considered to be adaptive in nature (Westerhof et al., 2010). Two comparison groups were also utilised to assess for discriminant effects of problem-

solving and identity reminiscence relative to other types of reminiscence that may also have effects on well-being and self-concept. A bitterness revival reminiscence group, pertaining to the recall of a negative or adverse event, such as an unresolved conflict (Webster, 1993) was used. This was to test for contrasting effects, and therefore the specificity of positively- (problem-solving and identity) and negatively-valenced (bitterness revival) reminiscence activities. A control group was also used wherein individuals recalled any memory from their past. This control group was used to discriminate any effects of “free recall” reminiscence from specified types of reminiscence used in CRT. The outcomes of interest were those implicated in change processes in CRT discussed above (self-esteem, self-efficacy, meaning in life, and optimism), as well as positive and negative affect. In addition, effects on the awareness of narrative identity were also of interest. Narrative identity refers to the evolving stories that we create about the self by using the constructed past (McAdams, 2001; McAdams & McLean, 2013). Previous findings have indicated that young adults identify a stronger sense of having a life story as a positive outcome of reminiscence-based therapy (*blinded for review*). Although these outcomes were found in the context of reminiscence that was concertedly therapeutic in nature, it might be reasoned that any type of reminiscence involving reviewing AMs will increase the awareness of having a life story or stories.

In the context of the above, several hypotheses were generated:

I) On the basis of the proposed effects of guided, adaptive reminiscence in CRT (Watt & Cappeliez, 1995, 2000) and prior findings (Cappeliez & Robitaille, 2010; *blinded for review*), it was hypothesised that engaging in problem-solving and identity reminiscence activities would cause increases in positive affect, self-esteem, meaning in life, self-

efficacy, and optimism, as well as decreases in negative affect relative to the bitterness revival and control conditions.

II) Due to expected differences in the content of problem-solving (e.g., instrumental behaviours and coping experiences) and identity reminiscence (e.g., turning points and intrinsic meaning in life), it was hypothesised that engaging in problem-solving reminiscence would lead to stronger effects on self-efficacy relative to identity reminiscence, whereas engaging identity reminiscence would lead to stronger effects on meaning in life.

III) Given that the content of bitterness revival reminiscence is likely to relate to negative themes such as disappointment, conflict, or regret, it was hypothesised that this would cause decreases in positive affect, self-esteem, self-efficacy, and optimism, and increases in negative affect.

IV) As all conditions involved explicit recalling and reviewing AMs, it was hypothesised that all conditions would cause increases in the perception of having a life story or life stories.

Methods

Design

To assess the effects of the reminiscence activities, and differences between the reminiscence conditions, a randomised, controlled experimental was conducted with a 4 (reminiscence activity condition: problem-solving, identity, bitterness revival, and control) x 2 (time-points: pre- and post-reminiscence activity) between- and within-subjects repeated measures design. The dependent variables were measures of affect and

the other psychological variables discussed above before and after the brief reminiscence activity.

Participants and Procedure

Ethics approval was granted by the Deakin University Human Research Ethics Committee. Participants were recruited via Amazon's Mechanical Turk (MTurk; [https://www.mturk.com/mturk/ welcome](https://www.mturk.com/mturk/welcome)). MTurk facilitates recruits participants online to complete tasks in exchange for a nominal payment. Data from MTurk have been shown to be psychometrically reliable and valid, and comparable to that obtained using other recruitment methods (see Paolacci & Chandler, 2014 for a review). The study was advertised as open to individuals aged between 18 and 30 who were fluent in English and had obtained a high (> 95%) reliability rating on MTurk, as established through previous feedback from other data collectors. Prior to commencing the study, participants were taken to a webpage presenting the plain language statement, with informed consent implied by completion of the study. All participants completed the same questionnaires, but were randomised to one of the four reminiscence activity conditions. The study took approximately 15-20 minutes to complete. Participants were advised to spend at least five minutes on the reminiscence activity. A timer was used on the page of the survey corresponding to reminiscence activity to assess how long participants spent before moving to the set of post-reminiscence activity questions. Participants were paid US\$0.40 for completing the survey (which contained demographic questions and a battery of measures, including those utilised in the current study) and the reminiscence activity. Links to mental health services were provided following completion of the study.

G*Power 3.1.9.2 was used to calculate the required sample size (Faul, Erdfelder,

Lang, & Buchner, 2007). To observe interaction effects between conditions and time-points of a small magnitude with statistical power of .80 and alpha of .05, a total sample size of 280 was needed. A total of 419 participants were recruited, with oversampling in anticipation of a reduced N following data cleaning. Participants who completed the experiment more than once were removed ($n = 57$). The validity of participants' engagement in the reminiscence activity was assessed by inspection of their responses to the open-ended questions about the retrieved memory (see materials below). Participants who provide irrelevant or no responses to at least one of these questions were removed as part of this process ($n = 18$), and a further 23 as part of data cleaning. The final sample consisted of 321 participants (89 problem-solving, 69 identity, 79 bitterness revival, and 84 control). Chi-square tests indicated no differences between conditions on categorical demographic variables (all tests $p > .154$). A one-way ANOVA on age showed no difference between conditions, $F(3, 321) = 1.4, p = .246$. Given this lack of difference between conditions, aggregated demographic statistics are presented in Table 1.

Materials

On all measures participants were asked to rate how they felt “right now” on a 0 (*very slight or not at all*) to 10 (*extremely*) Likert scale.

To assess affect, the short-form of the Positive and Negative Affect Scale was used (PANAS; Mackinnon et al., 1999). The PANAS consists of 10 items, of which five measure positive affect and five measure negative affect. The PANAS has previously been shown to have good psychometric properties (Mackinnon et al., 1999). In the current study Cronbach's alphas of .92 and .93 were found for the positive scale pre- and post-reminiscence activity, respectively, and a Cronbach's alpha of .94 was found for the

negative scale at both time-points.

Five single-item measures were used to assess for changes on the remaining psychological constructs of interest. This was done due to the view that administering a range of multiple-item scales before and after only a brief activity was too burdensome for participants. Although single-item measures do suffer some shortcomings, they have been demonstrated to have validity in measurement and are congruent with multiple-item scales across a range of psychological variables (e.g., Davey, Barratt, Butow, & Deeks, 2007; Robins, Hendin, & Trzesniewski, 2001). All single-items in this study were taken from well-validated and psychometrically sound scales, and had content representing the essence of the construct being measured.

To assess self-esteem, the item “I take a positive attitude towards myself”, was taken from the Rosenberg Self-Esteem Scale (Rosenberg, 1965). This scale has been found to have good reliability and validity in large cross-cultural samples (Schmitt & Allik, 2005), with this item correlating highly with the full scale (e.g., Gray-Little, Williams, & Hancock, 1997; Tinakon & Nahathai, 2012).

To assess meaning in life, the item “I have a good sense of what makes my life meaningful”, was taken from the Presence subscale of the Meaning in Life Questionnaire (Steger, Frazier, Oishi, & Kaler, 2006). This item correlates highly with the total subscale, which has good psychometric properties and measures meaning in life as a distinct psychological construct (Steger et al., 2006).

To assess self-efficacy, the item “I will be able to successfully overcome many challenges” was taken from the New General Self-Efficacy Scale (Chen, Gully, & Eden, 2001). The New General Self-Efficacy Scale has demonstrated psychometric superiority

over other measures of general self-efficacy, with this item showing a high item-total correlation (Scherbaum, Cohen-Charash, & Kern, 2006).

To assess optimism, the item, “Overall, I expect more good things to happen to me than bad”, was taken from The Life Orientation Test – Revised (Carver & Scheier, 2003). This measure of optimism is valid and reliable (Carver, Scheier, & Segerstrom, 2010), with the utilised item correlating moderately-highly with the full scale (Lyrakos, Damigos, Mavreas, Georgia, & Dimoliatis, 2010).

The awareness of a narrative identity, that is, awareness of having a “life story” or “life stories” was assessed using the item, “My sense of having a life story, or life stories, is strong”. This item was designed for this study to explore whether explicit and purposeful reminiscence might strengthen the continuity and coherence of autobiographical memories in the form of personal narratives (McAdams, 2001).

Reminiscence activity. The reminiscence activity was designed to elicit AMs, and was guided in the sense that participants were prompted by questions to facilitate reflection on the significance of these experiences and how they felt about them. Participants were provided with these instructions: “We now ask you to focus on a memory from sometime in your life. The activity will involve recalling and revisiting this memory, and then answering a small number of simple questions about it”. Participants were then provided with the stem instruction, “Think back over your life to...”, followed by one of four extensions dependent on the condition to which they were randomized: “a time in your past when you successfully coped with a challenge in your life” (problem-solving condition), “an event or experience in your past that was meaningful and helped shape how you became the person that you are (identity condition), “a negative

experience in your past when you were disappointed in yourself, in conflict with someone else, or for some other reason have regrets” (bitterness revival condition), or “an event or experience from your past, whatever comes to mind” (control condition). They were then asked to take a few minutes to close their eyes, clear their mind and focus on the memory chosen, and to recall the time in their life as well as thoughts or emotions that best captured that memory and how they felt at the time. Participants in all conditions were then prompted to provide some qualitative information pertaining to the memory:

- ! “Please provide a brief one or two sentence description of the experience you recalled”
- ! “Please describe the important people related to this event”
- ! “Was there anything significant or meaningful about this memory?”
- ! “What plans and actions did you take to solve the challenge?” (problem-solving condition only)
- ! “What was the outcome?”
- ! “How did you feel about yourself when thinking about this?”
- ! “Thinking about this memory, what did you learn about yourself?”

In addition to guiding the reminiscence, the act of responding to these items functioned as a validity check for engagement in the activity.

Data Analytic Approach

The Statistical Package for the Social Sciences 22.0 (SPSS) was used to conduct all statistical analyses. The dataset was cleaned in accordance with guidelines provided by

Tabachnick and Fidell (2007). To assess changes over time and any difference between conditions on the measures used, a 4 (condition) x 2 (time-point) repeated measures MANOVA was used as an omnibus tests of effects, with follow-up univariate 4 (condition) x 2 (time-point) ANOVAs. Where a main effect for time or an interaction of time and condition was found, follow-up within-condition *t*-tests were conducted utilising the false discovery rate procedure (Benjamini & Hochberg, 1995; Benjamini & Yekutieli, 2001) to control for type I errors, with α set at .05. Relative to multiple comparison corrections that control the familywise error rate to avoid making a single type I error, this procedure provides more statistical power to identify effects by aiming to control only the proportion of significant results that are type I errors.

Pearson's correlations were used to assess the whether there was any association between the time taken on the reminiscence activities and change scores on the outcome measures in each condition.

Two items of qualitative information collected from participants about their AM, i.e. the outcome of the event or experience and how they felt about themselves when recalling the memory, were analysed to assess for differences between reminiscence types. These items were used as they capture the reflective and evaluative processes of guided reminiscence, rather than simply the factual or descriptive content of the AM. In regards to the perceived outcome, each response was coded as either positive (e.g., "I passed all my classes and made progress in my job"), negative (e.g., "I was left lonely"), or neutral (e.g., "Nothing", "Don't know"). The same coding system was used in regards to how participants felt about themselves: positive (e.g., "Very happy and proud of it", "Great"), negative (e.g., "It still hurts a lot", "Sad"), or neutral (e.g., "I kind of feel

indifferent”, “A mixture of things”). Initially, 50% of the responses for each item were coded by two independent coders. Inter-rater reliability was found to be good for outcome ($\kappa = .82, p < .001$) and feelings ($\kappa = .84, p < .001$). The remaining responses were then coded by the first author. The frequency of positive, negative, and neutral outcomes and feelings were compared between groups using an omnibus chi-square test, with follow-up z-tests with Bonferroni corrections (α set at .05).

Results

Participants spent an average of 297 seconds (range 36-1392, $SD = 219$, skewness = 1.13 [$SE = .14$] and kurtosis = 1.06 [$SE = .28$]) completing the reminiscence activity. An ANOVA comparing time spent on the reminiscence activity between conditions indicated no significant difference, $F(3, 321) = .90, p = .442$.

The 4 (condition) x 2 (time-point) repeated measures MANOVA showed a significant effect for time, $F(7, 311) = 5.2, p < .001$, partial $\eta^2 = .11$, and an interaction between time and condition, $F(21, 939) = 2.1, p = .003$, partial $\eta^2 = .05$.

Follow-up univariate tests indicated there were significant main effects between time-points with increased positive affect, $F(1, 317) = 4.7, p = .031$, partial $\eta^2 = .08$, decreased negative affect, $F(1, 317) = 11.7, p = .001$, partial $\eta^2 = .04$, increased meaning in life, $F(1, 317) = 26.1, p < .001$, partial $\eta^2 = .08$, increased self-efficacy, $F(1, 317) = 9.0, p = .003$, partial $\eta^2 = .03$, and increased perceptions of a life story/stories, $F(1, 317) = 6.1, p = .019$, partial $\eta^2 = .02$, but no change on self-esteem, $F(1, 317) = 3.0, p = .084$, partial $\eta^2 = .01$, or optimism, $F(1, 317) = 2.1, p = .183$, partial $\eta^2 = .01$. With regards to interactions between time and conditions, significant effects were found for positive affect, $F(3, 317) = 3.0, p = .031$, partial $\eta^2 = .03$, negative affect, $F(3, 317) = 1.9, p = .129$, partial $\eta^2 = .02$,

self-esteem, $F(3, 317) = 5.3, p = .001$, partial $\eta^2 = .05$, meaning in life, $F(3, 317) = 7.3, p < .001$, partial $\eta^2 = .07$, and self-efficacy, $F(3, 317) = 3.7, p = .031$, partial $\eta^2 = .03$, but not for optimism, $F(3, 317) = 1.5, p = .201$, partial $\eta^2 = .02$, or perception of a life story/stories, $F(3, 317) = 1.2, p = .317$, partial $\eta^2 = .01$.

Follow-up *t*-tests were conducted within conditions for all variables that showed time or interaction effects (see Table 2 for *t*-test results and descriptive statistics). In the problem-solving condition self-esteem, meaning, self-efficacy, and life story all increased following the reminiscence activity, while negative affect decreased. In the identity condition positive affect, self-esteem, meaning, and self-efficacy all increased following the reminiscence activity. No changes were observed in the bitterness revival or control condition. With respect to hypothesis IV, there did not appear to be differences between the problem-solving and identity conditions in effect sizes for self-efficacy and meaning in life. This was indicated by identical effects on self-efficacy in both conditions ($d = .21$), and the considerable overlap of the confidence intervals on effect sizes for meaning (problem-solving CI 95% [-.59, .00] vs. identity CI 95% [-.68, -.01]).

The results of the Pearson correlations indicated that the amount of time spent completing the reminiscence activity was not associated with any changes in the outcomes measures in any of the conditions (all $r < .15$, all $p > .05$).

Omnibus chi-square tests showed significant effects for the relative frequency of positive, negative, and neutral outcomes, $\chi^2(6) = 23.5, p = .001$, and feelings, $\chi^2(6) = 21.7, p = .001$, relating to the AMs (see Tables 3 and 4 for descriptive statistics). Follow-up *z*-tests indicated that there was no difference between conditions on the frequency of reported positively- and neutrally-valenced outcomes and feelings when recalling the

AM. However, relative to the other conditions, a significantly greater proportion of participants in the bitterness revival condition reported negative outcomes and feelings relating to the AM.

To explore if the lack of effect in the bitterness revival condition was related to a higher proportion of negatively-valenced AMs, two repeated-measures MANOVAs were conducted within this condition. The valence of the outcome (negative or positive, with neutral responses excluded) was used as a between-factors IV in one MANOVA, and the valence of feelings as a between-factors IV in another, with time-point as the within-groups factor and outcome variables as DVs. For the MANOVA examining valence of outcomes, no multivariate interaction effect was found, $F(7, 62) = .09, p = .536$, nor did exploratory univariate analysis show any interaction effects (all $p > .05$). For the MANOVA examining valence of feelings, a multivariate interaction effect was found, $F(7, 64) = 2.1, p = .058$, with significant interaction effects for positive affect, $F(1, 70) = 4.3, p = .042$, and self-esteem, $F(1, 70) = 4.2, p = .044$. However, within-group t -tests indicated there were no significant changes on positive affect for those who reported positive, $t(34) = 1.2, p = .256$, or negative feelings, $t(36) = 1.8, p = .083$, nor significant changes on self-esteem for those who reported positive, $t(34) = 1.5, p = .134$, or negative feelings when engaging in the activity, $t(36) = 1.4, p = .166$.

Discussion

The purpose of this study was to gain further understanding on the therapeutic effects of brief, adaptive reminiscence activities that underpin CRT, and how these effects might differ dependent on the type of reminiscence. The hypotheses provided in the introduction will now be considered in turn.

The findings predominantly support the prediction that reminiscence for problem-solving and identity purposes would lead to increases in well-being and a more positive self-concept, as well as reductions in negative affect. Self-esteem, meaning in life, and self-efficacy were all found to increase in the problem-solving and identity conditions, while positive affect increased only in the identity condition and negative affect decreased only in the problem-solving condition. These effects occurred in the absence of any change on outcome variables in the bitterness revival and control conditions. It is unclear why differences in significant outcomes on affect were found between the problem-solving and identity conditions.

Notably, no effects were found on optimism. This suggests that none of the four brief reminiscence activities are powerful enough to cause changes in generalised optimism. This is perhaps understandable, given that optimism is often considered to be a relatively stable disposition of favourable expectancies for the future, and therefore potentially less amenable to change through brief interventions based on reminiscence about the past (Carver, Scheier, & Segerstrom, 2010).

No differences were found between the problem-solving and identity conditions on changes in measures of self-efficacy and meaning in life. Both conditions were found to produce small effects on self-efficacy, and small-to-moderate effects on meaning in life.

Taxonomically, these reminiscence types represent distinct uses of AM, that is, for instrumental and goal-directed purposes or for identifying and integrating experiences related to a sense of personal identity. When used in CRT, the content of these reminiscence types is also delineated as such, with problem-solving concerned with stress and coping issues and identity focused on self-defining events implicated in the

development and maintenance of personal identity and associated purpose in life (Watt & Cappeliez, 2000). Despite these conceptual and practical distinctions, previous quantitative research has shown these constructs to be highly correlated, with similar associations with measures of self-concept and well-being (e.g., Cappeliez & Robitaille, 2010; *blinded for review*). Overlap between these categories might be reasonably expected in real-world circumstances, wherein AM is likely to serve several psychosocial functions simultaneously.

Given the above, it may be that when asked to identify previous instances of problem-solving, individuals select self-defining events and experiences that were of personal significance to them. Further, the theme of agency that is inherent in overcoming challenges in life incorporates aspects of personal achievement and the perceived ability to exert influence on one's life. Therefore, these problem-solving AMs are likely to be implicated in the process of meaning-making and associated identity formation/continuity. Conversely, reminiscence of significant events involved in identity and meaning-making may involve instances of problem-solving (e.g., the social, emotional or financial challenges that individuals face in undertaking meaningful pursuits). In this sense, these types of reminiscence may represent two different methods to affecting common underlying psychological constructs of positive self-regard, meaning in life, and self-efficacy. Indeed, a previous trial of CRT comparing two separate arms of intervention, one specifically focused on identity and meaning-making (integrative reminiscence) and one on past problem-solving (instrumental reminiscence), showed little difference in outcomes between conditions (Watt & Cappeliez, 2000).

The results did not support the prediction that bitterness revival reminiscence would

cause decreases in positive affect, self-esteem, self-efficacy, and optimism. Furthermore, although the frequency of negative-valenced outcomes of AMs and feelings when recalling the AMs was higher in the bitterness revival condition relative to other conditions, no corresponding increases in negative affect were observed. It appears that a brief reminiscence activity such as this was not sufficient to increase negative affect, nor adversely affect well-being or self-concept.

These findings are congruent with the fading affect bias (Walker, Vogl, & Thompson, 1997), whereby the intensity of negative affect prompted by the recall of negative personal life events decreases more over time relative to positive affect prompted by recall of positive personal life events. This bias is thought to be underpinned by the tendency to demote the importance of negatively-valenced experiences over time, and elevate positive events as being self-defining and important so as to maintain a positive and adaptive self-concept (Ritchie, Skowronski, Cadogan, & Sedikides, 2014). It is noteworthy that although participants were asked to recall negative AMs, approximately half of them reported that these AMs had positive outcomes and that they felt positive feelings as a result of reviewing the AM. The combined influence of the fading affect bias, as well as the significant proportion of individuals perceiving these AMs as having positive outcomes, likely explain, in part, the lack of predicted effects.

The results partially supported the prediction that the perception of having life narratives in the form of stories would be strengthened as a result of the reminiscence activities. Although a main effect for time was found, this was primarily accounted for by the problem-solving condition. In all other conditions there was no significant effect. This was somewhat contradictory to expectations that the act of engaging in reminiscence,

regardless of the content, would strengthen awareness of having a life story or life stories. It may be that focusing on experiences of successfully coping with challenges serves to make personal narratives especially more salient, due to their causal and thematic coherence with other life events. Indeed, AMs involving agency, in relation to accomplishment and controlling of one's fate, are proposed to be a central superordinate thematic cluster in life narratives (McAdams, 1996).

General Discussion

Overall, the findings of this study indicate that the guided use of reminiscence for adaptive problem-solving and identity purposes has small, but significant immediate effects on variables relating to positive well-being and self-concept. The use of a sample of young adults also extends on current understanding of the utility of reminiscence activities in this age group, which has been largely neglected in reminiscence outcome research. Although these activities were short and limited in their scope, they provide further evidence for the positive psychological effects of reminiscence activities, and that these effects occur for young adults.

Previous research has indicated that reminiscence-based interventions produce change in the variables examined in this study, which mediates effects on depressive symptoms (e.g., Korte et al., 2012; Westerhof et al., 2010). While the effects found in the current study were very small in magnitude, they do suggest that adaptive reminiscence impacts on these proposed mediators of change in CRT, if not psychopathology per se. Future studies might also measure depressive symptomatology or use clinical samples to test whether depression is also reduced through these isolated reminiscence activities. Moreover, these findings provide further “proof of concept” for the evaluation of courses

of CRT with young adults, involving longer, more thorough guided reflection on AMs in a six-session course of treatment (*blinded for review*).

The current findings build on previous research to provide evidence that the effects of engaging in guided, adaptive types of reminiscence, for relatively short periods of time in this instance, has positive effects on self-esteem, meaning in life, and self-efficacy, as predicted by CRT theory. The two AM activities utilised in this study represent activities that are engaged in during CRT. Within sessions these activities involve interaction with the therapist which is not accounted for in this study (e.g., probing for information to foster understanding of the clients' experiences). However, these findings may have particular external validity in relation to between-session worksheets that are provided to individuals to stimulate reminiscence content for the following week. These results suggest that completing activities such as these is likely to have small, but significant therapeutic effects on self-concept and well-being, even in the absence of a therapist's guidance.

As the reminiscence conditions did not differ on positively-valenced outcomes and feelings relating to the AMs, the observed effects of problem-solving and identity reminiscence activities did not appear to be due simply to recalling positive memories. If the sole factor in change was that memories were evaluated in a positive way, then effects on measures in the control condition might be expected. Instead, these findings suggest that reminiscing for problem-solving and identity purposes serves intrinsically adaptive roles in improving self-concept and well-being. Indeed, two meta-analyses (Bohlmeijer, Smit, & Cuijpers, 2003; Pinquart & Forstmeier, 2012) have shown that reminiscence-based therapies that purposefully utilise adaptive reminiscence in a theoretically-driven

way have stronger effects on outcomes such as alleviating depression, relative to unstructured reminiscence. Contrary to our findings, Cili and Stopa (2015) recently reported that recalling negative self-defining memories does have a negative influence on the self, relative to positive memories. As noted above, it may be that the bitterness revival activity in our study did not produce negative effects due to insufficient strength of emotional valence, vividness, or clarity of the memories. Future research might account for these factors, which may also represent mechanisms by which to increase the positive effects associated with problem-solving and identity reminiscence activities.

It was noteworthy that the time taken to complete the reminiscence activities did not have any effect on outcomes. This suggests that rather than the amount of time taken reviewing memories, it may be the type of reminiscence and reflection that is the primary factor producing change. This again provides evidence that problem-solving and identity reminiscence have intrinsic qualities that are adaptive. Stronger and long-lasting change might be generated through additional questions related to the content of the reminiscence task. For example, participants might be asked to provide a more thorough account of the details of the situation, provide further clarity on its significance, or to consider alternative perspectives or re-framing of the AM. In a face-to-face context, therapists can engage in these types of interactions, fostering reflection which likely promotes the clinically-significant changes in depression found in previous outcomes trials (e.g., Cappeliez, 2002; Watt & Cappeliez, 2000). Indeed, there are other apparent qualitative differences between the activities in this study and reminiscence-based therapy, including significantly longer engagement in reminiscence, usually over a series of sessions (Pinquart & Forstmeier, 2012), and the potential benefit of social stimulation

in group settings (Woods, Aguirre, Spector, & Orrell, 2012).

While the results of this study shed light on the process and outcomes of reminiscence activities, there are several notable limitations. The use of an online-based experiment makes it difficult to ascertain how concerted participants completed the AM activity. Although all participants included in analyses provided valid answers to questions about their AMs, it is possible that they did not exert much cognitive effort in recalling and reviewing their memories, potentially attenuating effects. The presence of an experimenter to guide the reminiscence and ensure that participants were on task may have been advantageous. This would provide more ecological validity in regards to the use of reminiscence in face-to-face therapeutic contexts. Future studies would benefit from assessing the effect of additional reflection on AMs (as discussed above) and the effect of this on self-concept and well-being. The use of single-item measures likely increased the risk of error in measurement, and multi-item scales should be utilised in future research of this kind. The recently developed Awareness of Narrative Identity Questionnaire may be of particular interest in measuring effects on narrative identity and the related coherence of memories (*removed for blinding*). The lack of follow-up data is another inherent limitation of the study. Although the observed effects were small in magnitude, follow-up data would have allowed for tests of whether these changes were maintained over time. Future studies might also seek to assess whether these effects are moderated by age.

In conclusion, these findings provide “proof of concept” for the effects of reminiscence activities in young adults, evidence of the specificity of types of reminiscence activity, and indirect support for the hypothesised change mechanisms in

CRT.

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Table 1.

Demographic Characteristics of Sample

Demographic Variable	
Mean Age (SD)	25.5 (3)
Female	50.5%
<u>Country</u>	
India	55%
U.S.A.	40%
Other	5%
<u>Employment</u>	
Full-time	6.2%
Part-time	29.3%
Casual	48.6%
Unemployed	15%
No response	.9%
<u>Highest Education</u>	
Postgraduate	26.8%
Undergraduate	47.4%
Diploma or certificate	15.9%
Secondary college	9%
No response	.9%
<u>Currently Studying</u>	
Yes	32.4%
No	66%
No response	1.6%
<u>Relationship Status</u>	
Married	27.4%
Partnered and cohabiting	13.7%
Partnered, not cohabiting	12.5%
Single	45.2%
No response	1.2%

Table 2. *Results of Within-Group t-tests on Variables with Means and Standard Deviations (SD) Note: all p values in bold are sig. at the .05 level following correction for multiple comparisons.*

	Pre	Post	<i>t</i>	<i>sig.</i>	<i>d</i>
<u>Problem-solving</u>					
Positive Affect	31.2(13.7)	32.9(12.4)	1.7	.085	-
Negative Affect	12.3(13.8)	9.9(12.2)	3.0	.004	.18
Self-Esteem	7.2(2.9)	7.6 (2.7)	3.3	.001	.14
Meaning in Life	7.1(2.7)	7.8 (2.3)	4.4	<.001	.29
Self-Efficacy	7.4(2.6)	7.9 (2.2)	2.9	.005	.21
Optimism	7.3(2.7)	7.5 (2.6)	-	-	-
Life Story	7.1(2.9)	7.5 (2.5)	2.3	.027	.15
<u>Identity</u>					
Positive Affect	33.1(12.3)	35.2(13.1)	2.5	.014	.17
Negative Affect	14.4(15.4)	12.6(13.7)	1.8	.070	-
Self-Esteem	6.9(3.1)	7.4(2.9)	2.4	.022	.17
Meaning in Life	6.8(2.8)	7.7(2.4)	3.9	<.001	.35
Self-Efficacy	7.4(2.3)	7.8(2.2)	2.6	.011	.21
Optimism	7.6(2.4)	7.8(2.3)	-	-	-
Life Story	7.3(2.4)	7.5(2.5)	1.8	.069	-
<u>Bitterness Revival</u>					
Positive Affect	33.4(13.3)	32.3(14.8)	1.5	.131	-
Negative Affect	11.8(13.7)	12.0(13.9)	0.4	.720	-
Self-Esteem	7.3(2.6)	7.3(2.7)	0.2	.873	-
Meaning in Life	7.6(2.2)	7.5(2.4)	0.8	.408	-
Self-Efficacy	7.7(2.1)	7.7(2.1)	0.3	.794	-
Optimism	7.3(2.7)	7.4(2.6)	-	-	-
Life Story	7.1(2.6)	7.3(2.5)	0.9	.353	-
<u>Control</u>					
Positive Affect	33.1(12.4)	34.6(12.9)	1.2	.217	-
Negative Affect	15.0(13.8)	13.0(13.2)	2.1	.038	-
Self-Esteem	7.8(2.5)	7.5(2.9)	1.8	.063	-
Meaning in Life	7.5(2.5)	7.7(2.4)	1.3	.203	-
Self-Efficacy	8.0(2.1)	7.9(2.2)	0.6	.532	-
Optimism	7.7(2.6)	7.5(2.9)	-	-	-
Life Story	7.7(2.3)	7.8(2.5)	0.1	.903	-

Table 3. *Frequency of Reported Positive, Negative, and Neutral Outcomes Associated with Autobiographical Memories within Each Condition*

Condition	Positive	Negative	Neutral
Problem-solving	79.1% ^a	8.1% ^a	12.8% ^a
Identity	73.5% ^a	14.7% ^a	11.8% ^a
Bitterness Revival	53.8% ^a	35.9% ^b	10.3% ^a
Control	71.3% ^a	15% ^a	13.8% ^a

Note: subscript letters denote a subset of categories whose relative column proportions do not differ significantly at the .05 level

Table 4. *Frequency of Reported Positive, Negative, and Neutral Feelings about the Self Associated with Autobiographical Memories within Each Condition*

Condition	Positive	Negative	Neutral
Problem-solving	66.7% ^a	21.8% ^a	11.5% ^a
Identity	70.1% ^a	17.9% ^a	11.9% ^a
Bitterness Revival	44.3% ^a	46.8% ^b	8.9% ^a
Control	67.5% ^a	20.5% ^a	12% ^a

Note: subscript letters denote a subset of categories whose relative column proportions do not differ significantly at the .05 level