

**Final Honour School of Experimental Psychology and Psychology,  
Philosophy and Linguistics 2017**

**Simple Mental Exercises to Improve the Mental Health of  
University Students: A Randomised Controlled Trial**

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Word count: 5976

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## Abstract

University can be a stressful experience, as well as an exciting one. Students are under a lot of pressure academically, and also have other sources of stress (e.g. financial and relationship issues), which can lead to a build-up of psychological distress and reduction in subjective well-being. Our study aimed to investigate the effectiveness of two simple mental exercises on enhancing subjective well-being and reducing psychological distress in undergraduate students at Oxford University: Planning Ahead (Meier, 2014) and Bibliotherapy. The planning ahead task entailed planning for the next day and reflecting on the day that has just passed for 10 minutes before bed. The bibliotherapy task involved taking 10 minutes before bed to slowly read short poems whilst focusing on the present moment. We conducted a randomised controlled trial, and measured psychological distress (GHQ-12), subjective well-being (Warwick-Edinburgh Mental Well-being Scale) and mindfulness (Mindful Awareness Attention Scale) at 4 different time points (baseline, 1-week mid intervention, 1-week post intervention and 3-week post-intervention follow-up). Interventions took place for 2 weeks. Compared to the no-intervention control group, the planning ahead exercise and bibliotherapy exercise reduced psychological distress, but did not significantly enhance well-being. Interestingly, the planning ahead task increased levels of mindfulness, but the bibliotherapy task did not. The maintenance of these changes is discussed. Our results suggest that planning ahead and bibliotherapy could be simple, fast-acting and effective techniques for reducing distress in university students and could have possible implications for early mental health interventions. Further investigation of the bibliotherapy task is now required. Future directions for research are discussed.

The prevalence of mental health problems is on the rise, with 17% of adults in England having a common mental disorder (McManus, Bebbington, Jenkins, & Brugha, 2014). Mental health problems are more prevalent in students compared to the general population (Stewart-Brown et al., 2000), with 58% of Oxford undergraduate students reporting experiencing a mental health problem over the past year (Howe & Lennon, 2016). This is particularly the case for first-year undergraduate students; it was reported by Cooke, Bewick, Barkham, Bradley and Audin (2006) that student mental health declines upon arrival to university and does not return to pre-university levels. Students report academic problems, financial issues, loneliness and relationship difficulties as factors underlying their decrease in mental health (Furr, Westefeld, McConnell & Jenkins, 2001). These stressors are likely to contribute to the development psychological distress or exacerbate existing mental health symptoms. Most mental health disorders have first onset by 24 year of age (Kessler et al., 2005). More and more young people are going to university – in 2016 32.5% of the 18-year-old population in England were accepted into higher education and this acceptance rate has been on the rise since 2012 and continues to do so (UCAS Analysis and Research, 2016). Taken together, this information suggests that targeting subdromal symptoms and stress in university students presents a unique opportunity to introduce early interventions that could prevent transition to more severe long-term mental health problems.

Psychological distress and poor mental health can have a multitude of implications, one of particular importance and concern for university students is the detrimental effects on academic performance. Andrews and Wilding (2004) found that depression and financial difficulties predicted a decline in academic performance.

Despite high levels of psychological distress in university students and the associated risks, around 2/3 of students experiencing mental health problems do not seek help (Cooke et al., 2006). This could suggest that the current programmes in place to improve student mental

health and wellbeing are not being utilised by students. Ryan, Shochet and Stallman (2010) found that students were more inclined to seek help from informal sources and students were significantly less likely to seek help if they were experiencing high levels of psychological distress. They were investigating the possible utility of online-based mental health programmes with university students and found that 47% of students reported intention to use such an online mental health programme. Despite the availability of counselling services at many UK universities, it may be the case that informal, private forms of mental health support are more likely to be accessed by, and have a positive effect on, university students.

Cognitive-behavioural and mindfulness interventions are effective in reducing stress in university students (Regehr, Glancy & Pitts, 2013). In this study, we aimed to investigate the effectiveness of two simple mental exercises that employ some of these ideas, on enhancing subjective well-being and reducing psychological distress in Oxford undergraduates. One of the exercises, called Planning Ahead, involved setting aside 10 minutes before going to bed to plan the next day. This exercise was constructed by Meier (2014), who found it to be effective at reducing distress (as measured by the GHQ-12) in Oxford undergraduates, when performed for a two-week period as part of a randomised controlled trial. She also found it to be more effective than the 'Three Good Things' task developed by Seligman, Steen, Park and Stevenson (2005), which promotes a positive attributional style, bringing attention to positive aspects of oneself. However, Meier (2014) did not find the Planning Ahead task to increase subjective well-being, and the effects of the intervention were not maintained at the follow up 3 weeks later, although there appeared to be a trend. In the present study, we aimed to conduct a randomised controlled trial to replicate and extend the findings of Meier (2014), by gaining a larger sample and using a different measure of well-being designed for use with student populations.

Additionally, we also aimed to investigate the effectiveness of a second exercise – Bibliotherapy. The bibliotherapy exercise is based on the work of authors Dr Paula Byrne and Professor Sir Jonathan Bate who founded ‘ReLit’ – a foundation for bibliotherapy, which promotes slow reading as a valuable form of stress relief. They have conducted several online courses and a summer school with promising results. We aimed to empirically evaluate the possible efficacy of this promising technique for reducing stress and increasing well-being in students. In collaboration with Professor Sir Jonathan Bate and Dr Paula Byrne, we devised a bibliotherapy task based on the resources provided on the ReLit website (<http://www.relit.org.uk/>) and utilised ‘Stressed Unstressed’, a book of short poems aimed to reduce stress (Bate, Byrne, Ratcliffe, & Schuman, 2016). The exercise emphasises focusing on the present moment and concentrating on the poem, rather than worrying about the future or the past, which is assumed to be a source of stress for many individuals. This idea is well encompassed by the final verse of the poem ‘To a Mouse’ by Robert Burns:

“The *present* only toucheth thee:  
But Och! I *backward* cast my e’e,  
On prospects drear!  
An’ *forward*, tho’ I canna see,  
I *guess* an’ *fear*!”  
(Burns, 1785, p. 140)

In the case of both exercises and a no-intervention control group, we measured psychological distress (negative component of mental health), subjective well-being (positive component of mental health) and mindfulness. We expected to find enhancement of subjective well-being and a reduction in psychological distress in those performing the planning ahead exercise, in line with Meier’s (2014) findings. Given the promising results of courses by the ReLit foundation, we expected to find enhanced well-being and reduced

distress in those performing the bibliotherapy exercise also. We also measured mindfulness to investigate whether these tasks, particularly the bibliotherapy task, lead to increased mindfulness in everyday life.

## **Method**

### **Design**

Participants were randomly assigned to either the no-intervention control group, the planning ahead exercise or the bibliotherapy exercise. Randomisation was stratified according to gender. Due to the relatively small sample we were not able to stratify the further (i.e. according to pre-randomisation outcome measures or subject). Participants allocated to the intervention groups were asked to complete the exercise for an initial 2 weeks, after this period they were encouraged to continue the exercise if they felt it was helpful. Outcome measures were taken at pre-randomisation, 1 week (mid-intervention), 3 weeks (1-week post-intervention) and 5 weeks (3-weeks post-intervention).

### **Participants and Exclusion Criteria**

Participants were recruited at the start of the academic year. We were focusing on undergraduate students, so a recruitment email was directly sent to undergraduate students at 16 different colleges at Oxford University. As an incentive, the chance to win Amazon vouchers (£25, £75, £100) was advertised. Upon receiving the email, students were instructed to directly contact the researcher for more information should they wish to participate. They were subsequently sent an email including a link to the online participant information sheet, consent form and screening questionnaire (see appendix I).

The screening questionnaire was made up of the Beck Depression Inventory (BDI: Beck, Rush, Shaw & Emery, 1979), demographic information questions, 2 questions about past mental health treatment and 2 questions about university subject. 2 filler questions were

also included to disguise the purpose of the screening, these were about participation in sport and musical instruments. Since our study focused on individuals without significant psychological problems, and was not conducted by qualified clinicians, we decided to exclude individuals who might be psychologically vulnerable. Students previously or currently receiving mental health treatment (including drug and/or psychological therapy) were excluded from the study. Students scoring more than 19 on the BDI and/or scoring 2 or more on item 9 of the BDI (suicidal ideation) were also excluded. Additionally, any students studying English (including joint honours subjects; e.g. History and English) were excluded, as we felt they may approach the bibliotherapy task very differently to other students who do not currently formally study English. Students who met the criteria for exclusion were informed via email that they were not eligible to participate at this time and any participant who was excluded due to BDI/mental health was informed of the support offered at Oxford. Our research was approved by the Oxford University Medical Sciences Inter-Divisional Research Ethics Committee (IDREC).

## **Recruitment**

We aimed to recruit at least 100 participants (33-34 per group) since Meier (2014) found a significant improvement in the GHQ-12 scores of the planning ahead group with a smaller sample (n=17 for planning ahead and n=17 for no-intervention control group). Following Tversky and Kahneman (1971), we substantially increased the planned sample size for replication and detecting any benefits that might be driven by the new mental exercise (bibliotherapy). We originally aimed to only target first year undergraduate students because they are most at risk of increased stress and decreased well-being due to change of environment and new work pressures.

The heads of 17 colleges at Oxford University agreed to send our recruitment email, to their first-year undergraduates at the start of the academic year and a reminder email 1 week later. Approximately 1600 first-year undergraduates received the email. Unfortunately, the recruitment rate was smaller than anticipated: 42 first-year students completed the screening questionnaire, of those 14 had to be excluded, leaving 28 students for testing.

Due to the smaller than anticipated recruitment rate, permission was requested from the ethics committee to recruit 2<sup>nd</sup> and 3<sup>rd</sup> year undergraduates. Colleges agreed to resend the recruitment email to their students, this time including 2<sup>nd</sup> and 3<sup>rd</sup> year undergraduates. In total, approximately 6000 undergraduate students received the recruitment email. 57 students completed the baseline screening questionnaire, of which 23 were excluded, leaving 34 for testing. Participants who were recruited during the first recruitment wave started 1 week before the second group, we decided to do it this way as we felt there could be possible confounds in the stresses during different terms at Oxford, therefore having all participants complete the intervention during the same term removed this possibility. In total, we recruited 62 undergraduate students.

## **Interventions**

Detailed instructions were sent out to participants who were randomly allocated, using sealed envelopes, to the intervention groups after they completed their baseline assessment: they were emailed the instructions (see Appendix II) as well as having a hard copy and handwritten letter delivered to their college (the control group were also sent a handwritten letter of appreciation for their continued participation in the study). If they were allocated to the Bibliotherapy group, participants were also sent a copy of the 'Stressed Unstressed' poetry book, kindly provided free of charge by the authors.

**Bibliotherapy exercise.** The rationale for this task is similar to the reflection in Robert Burn's poem. It is assumed that a considerable amount of stress is caused by the mind jumping ahead to the future or ruminating about the past. Mindfulness involves being in the moment and the bibliotherapy task aimed to reduce stress by promoting mindfulness. The participants were instructed to set aside 10 minutes before going to bed each night to read the assigned poem from the Stressed Unstressed book of short poems. Poems were assigned via text message – participants were sent a text message every three days informing them of the poems to read for the next three nights, every three nights the chapter the poems were from would change; this was done to maintain participant interest (see Appendix III). Participants were instructed to immerse themselves fully in the poem in order to give themselves a break from the stresses of everyday life. They were told to pay attention to how much calmer they felt after reading the poem and that when they felt stressed the next day they should try and remember how they feel in this moment and take a moment to try and feel that way again before continuing their day. The instructions received by participants were constructed to mimic the format and style of the Planning Ahead instructions constructed by Meier (2014), and we wrote the instructions for the bibliotherapy task in collaboration with two of the authors of 'Stressed Unstressed': Professor Sir Jonathan Bate and Dr Paula Byrne. The instructions also included a link to an example of how to read mindfully (see Appendix III).

**Planning Ahead exercise.** The rationale for this task is that organising one's time effectively and allowing time for enjoyable activities allows individuals to feel in control of their life, thus reducing feelings of stress. This exercise involved participants planning their day the night before and reflecting on the day that had just passed. Participants were asked to set aside 10 minutes before going to bed each night, for the next two weeks, to plan ahead for the next day, making sure that they included at least one enjoyable activity even if that activity could only be short. From the second day onwards, participants were also asked to begin the

10 minutes by reflecting on the day that had just, by thinking about what they had and hadn't managed to do that day. Participants were encouraged to be kind to themselves and not be critical if they didn't manage to complete as much as they had hoped to that day. The instructions given to participants were identical to those given to participants in Meier's (2014) study (see Appendix II). Participants in the planning ahead group were also sent reminder text messages every three days in order to equate this condition with the bibliotherapy exercise – these text messages consisted of a reminder to do the task and one key point from the instructions (see Appendix III). We also created an example video for the planning ahead exercise to further equate the conditions, the link to this video is included in Appendix III.

### **Outcome Measures**

Outcome measures were collected online using Qualtrics (<https://www.qualtrics.com/>). The questionnaires are included in Appendix IV. Questionnaire order was randomised, and the presentation of questions within each questionnaire was also randomised. We collected outcome measures at 4 different time points: pre-randomisation (baseline), mid-intervention (1 week into the intervention), 1 week post intervention and 3 weeks' post intervention (follow-up) – see Figure 1. We decided to collect outcome measures 1-week post-intervention as two of the measures (GHQ-12 and MAAS) ask about feelings during the past week, and we believed that asking participants at this point would encompass the time period when the interventions would have maximum effect.

During the study 4 students dropped out post-randomisation and did not complete any further measures, leaving 58 participants. Of those participants, 57 completed measures at all time points, including the follow up (control: 21; Bibliotherapy: 21; Planning Ahead: 15). Participants also completed a compliance questionnaire at the end of the intervention, which

assessed how many nights they completed the exercise out of 14, and whether they intended to continue performing the exercise (see Appendix V).

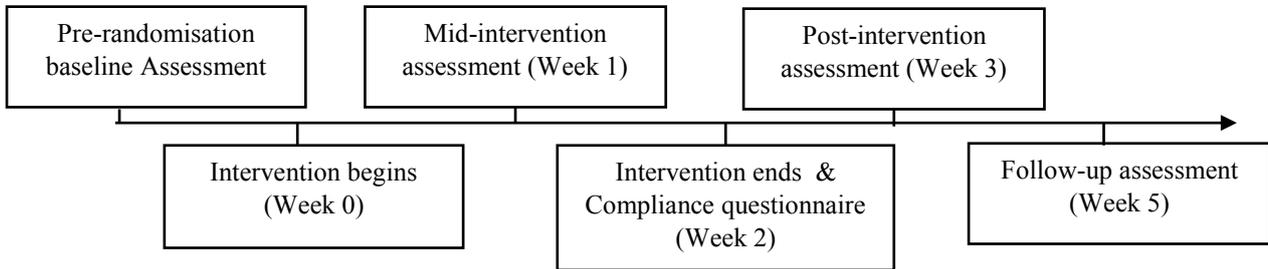


Figure 1 – timeline of outcome measures with respect to intervention

To compare the effect of both mental exercises on subjective well-being and psychological distress we used the Warwick-Edinburgh Mental Well-being Scale (WEMWBS) and General Health Questionnaire 12 (GHQ-12) respectively (see Appendix IV). We also wanted to assess mindfulness as this is what the bibliotherapy task aimed to enhance; to do this we utilised the Mindful Attention Awareness Scale (MAAS).

The *Warwick-Edinburgh Mental Well-being Scale* (Tennant et al., 2007) asks positively worded questions about different aspects of mental health. We decided to include a measure that focused on positive mental health, as mental health is not solely the absence of psychological distress or illness. The World Health Organisation (WHO) defines mental health as “a state of well-being in which an individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community” (WHO, 2016, “Mental health: Strengthening our response,” para. 2). The questionnaire is comprised of 14 items (e.g. I've been feeling optimistic about the future), that participants rate on a 5-point scale (None of the time [1]; Rarely [2]; Some of the Time [3]; Often [4]; All of the Time [5]). The total score was the sum of the 14 items, whereby higher scores indicate better subjective well-being. The WEMWBS

has good internal consistency (Cronbach's Alpha = 0.89 [for a student sample]; 0.91 [for a population sample]). For our sample, Cronbach's alpha was 0.86.

The *GHQ-12* (Goldberg & Williams, 1988) asks questions about negative affect and is a way of measuring general psychological distress rather than giving a specific diagnosis (e.g. depression); it has been extensively used in non-psychiatric and community settings. It is comprised of 12 items that assess the individual's current state and whether that differs from their usual state (e.g. Have you recently felt constantly under strain?); answers range from much less than usual to more than usual. The GHQ-12 is scored using Likert scoring (0-1-2-3). The total score is the sum of all 12 items, whereby higher scores indicate more distress. The internal consistency of the GHQ-12 is good (Cronbach's Alpha ranges from 0.82 to 0.86). For our sample, Cronbach's alpha was 0.80

The *Mindful Attention Awareness Scale* (MAAS) (Brown & Ryan, 2003) aims to assess the core characteristics of a mindful state where attention simply observes what is taking place in that moment. We included this measure as we believed it might be the case that an increase in mindfulness in everyday life results from bibliotherapy which in turn enhances well-being and reduces distress. The MAAS is comprised of 15 items (e.g. I rush through activities without being really attentive to them), individuals indicate how frequently or infrequently they have each experience (Almost Always [1] to Almost Never [6]). The score is the mean of all the items, whereby higher scores indicate greater levels of mindfulness. Internal consistency of the MAAS is good (Cronbach's Alpha = 0.82 [student sample]; 0.87 [general adult sample]). For our sample, Cronbach's alpha was 0.83.

### **Statistical Analysis**

Statistical analyses were performed using SPSS (v24: SPSS Inc., Armonk, NY). One-way ANOVA and Chi-square tests were used to test for any differences between groups at

baseline. To analyse our results, we used repeated measures ANCOVA, with baseline scores as a covariate, to compare the effects of the exercises on well-being (WEMWBS), distress (GHQ-12) and mindfulness (MAAS). In addition to this, we used a second repeated measures ANCOVA, including the follow-up data, to assess whether any changes were maintained at follow-up. We decided to use analysis of covariance (ANCOVA) rather than mixed model ANOVA, where possible, due to its ability to take into account relationships between start levels and degree of change. In addition to this, we also performed a Chi-Square test to assess the difference in the number of participants who continued the exercise between the two interventions.

## Results

### Sample Characteristics

Sample characteristics for the full sample including drop-outs are shown in Table 1; there were some drop-outs following randomisation (described later in this section), therefore analysis was conducted without inclusion of their data. See Table 2 for sample characteristics excluding drop-out data. A Chi Square test and one-way ANOVAs revealed that there were no significant differences in participant characteristics between the three groups of participants who were included in the statistical analysis (see Table 2).

*Table 1* – Sample Characteristics including drop-outs (n = 62)

	<b>Planning Ahead</b> n = 20	<b>Bibliotherapy</b> n = 21	<b>Control</b> n = 21
Age: Mean (SD)	19.10 (1.21)	19.00 (.89)	19.00 (.95)
Gender: No females. (%)	11 (55.00)	12 (57.14)	12 (57.14)
BDI: Mean (SD)	7.05 (4.62)	5.95 (4.59)	5.91 (5.12)
WEMWBS Baseline	50.10 (6.10)	48.81 (8.21)	48.05 (5.87)
GHQ-12 Baseline	12.00 (4.30)	12.14 (4.40)	13.38 (5.10)
MAAS Baseline	3.85 (.575)	4.01 (.653)	3.72 (.793)

Table 2 – Sample Characteristics of participants included in analysis (n = 58)

	Planning Ahead n = 16	Bibliotherapy n = 21	Control n = 21	Statistics	<i>p</i> value
Age: <i>Mean (SD)</i>	19.13 (1.20)	19.00 (.89)	19.00 (.95)	$F(2, 55) = .09$	.915
Gender: No. females (%)	11 (68.75)	12 (57.14)	12 (57.14)	$\chi^2(2, N = 58) = .65$	.722
BDI: <i>Mean (SD)</i>	5.63 (3.83)	5.95 (4.59)	5.91 (5.12)	$F(2, 55) = .03$	.975
WEMWBS Baseline	51.50 (5.55)	48.81 (8.21)	48.05 (5.87)	$F(2, 55) = 1.27$	.289
GHQ-12 Baseline	11.94 (4.65)	12.14 (4.40)	13.38 (5.10)	$F(2, 55) = .54$	.589
MAAS Baseline	3.94 (.545)	4.01 (.653)	3.72 (.793)	$F(2, 55) = 1.00$	.373

### Drop-outs and Follow-up

4 participants withdrew from the study after the pre-randomisation baseline assessment but before mid-intervention assessment. Two of the participants reported never starting the exercise, and the other two were not contactable. As there was no evidence that any of the drop-outs started the task, their data was not included in the analysis. All of these participants were from the Planning Ahead group.

58 participants completed the 1 week post-intervention measures (Planning Ahead, n = 16; Bibliotherapy, n = 21; Control n = 21). 57 participants completed the follow-up questionnaire at 3-weeks post-intervention: 15 from Planning Ahead (93.75%), 21 from Bibliotherapy (100%) and 21 from the control group (100%). Participant flow is show in the trial profile depicted in Figure 2.

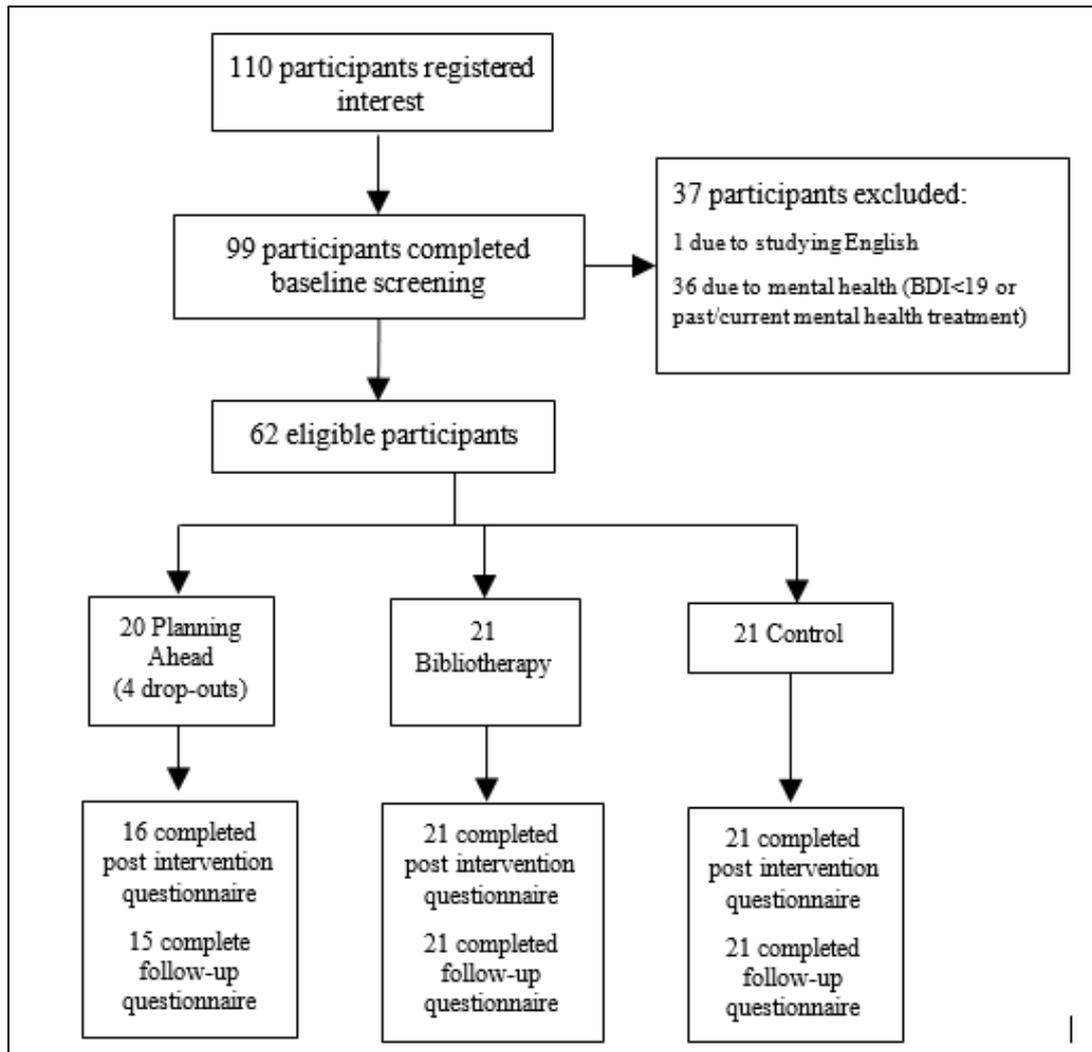


Figure 2 – Trial profile showing participant flow

## Compliance

At the end of the two-week intervention, participants in the intervention groups were asked how many nights (out of 14) they managed to complete the exercise. Planning Ahead:  $M = 12.38$ ,  $SD = 1.59$  and Bibliotherapy:  $M = 11.71$ ,  $SD = 1.88$ . A one-way ANOVA revealed that compliance rates did not differ significantly between conditions during the two-week intervention,  $F(1, 35) = 1.28$ ,  $p = .265$ . Participants complied well and completed the task on almost all days.

## Effects of the Interventions

A 2 X 3 repeated measures ANCOVA (within-subjects factor: time [mid-intervention, post-intervention]; between-subjects factor: condition [planning ahead, bibliotherapy, control]) was used to investigate whether there was a significant difference in outcome measures (distress, well-being and mindfulness) between the three conditions at mid- and post-intervention.

For the GHQ-12 there was a significant condition effect,  $F(2, 54) = 5.22, p = .008$ . Pairwise comparisons revealed that the planning ahead exercise significantly reduced GHQ-12 scores compared to the control group (ANCOVA adjusted mean difference = 4.34,  $p = .003$ ) – see Figure 3 and Table 3. Additionally, pairwise comparisons also showed that the Bibliotherapy exercise significantly reduced GHQ-12 scores compared to the control group (ANCOVA adjusted mean difference = 2.62,  $p = .044$ ).

For the MAAS there was a significant condition effect,  $F(2, 54) = 3.25, p = .047$ . Subsequent pairwise comparisons revealed that the planning ahead group showed significant improvements in mindfulness, compared to the control (ANCOVA adjusted mean difference of .309,  $p = .029$ ) and bibliotherapy groups (ANCOVA adjusted mean difference = .307,  $p = .029$ ) – see Figure 4.

No significant condition effect was found for the WEMWBS and there were no significant effects of time or Time X Condition interaction effects for any of the outcome measures.

Table 3  
Outcome measures at baseline, mid-intervention and 1 week post-intervention (n = 58)

	Planning Ahead (n = 16)		Bibliotherapy (n = 21)		Control (n = 21)	
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>
<b>WEMWBS (subjective well-being)</b>						
Baseline (wk 0)	51.50	(5.55)	48.81	(8.21)	48.05	(5.87)
Mid-intervention (wk 1)	52.62	(5.19)	51.48	(8.16)	47.57	(8.31)
Post-intervention (wk 3)	51.38	(8.25)	50.76	(7.00)	47.33	(9.00)
<b>GHQ-12 (psychological distress)</b>						
Baseline (wk 0)	11.94	(4.65)	12.14	(4.40)	13.38	(5.10)
Mid-intervention (wk 1)	8.38	(4.00)	10.95	(4.38)	14.05	(5.58)
Post-intervention (wk 3)	9.25	(4.55)	10.14	(2.73)	12.52	(6.41)
<b>MAAS (mindfulness)</b>						
Baseline (wk 0)	3.94	(0.55)	4.01	(0.65)	3.72	(0.79)
Mid-intervention (wk 1)	4.27	(0.68)	4.11	(0.62)	3.87	(0.77)
Post-intervention (wk 3)	4.46	(0.81)	4.13	(0.71)	3.86	(0.87)

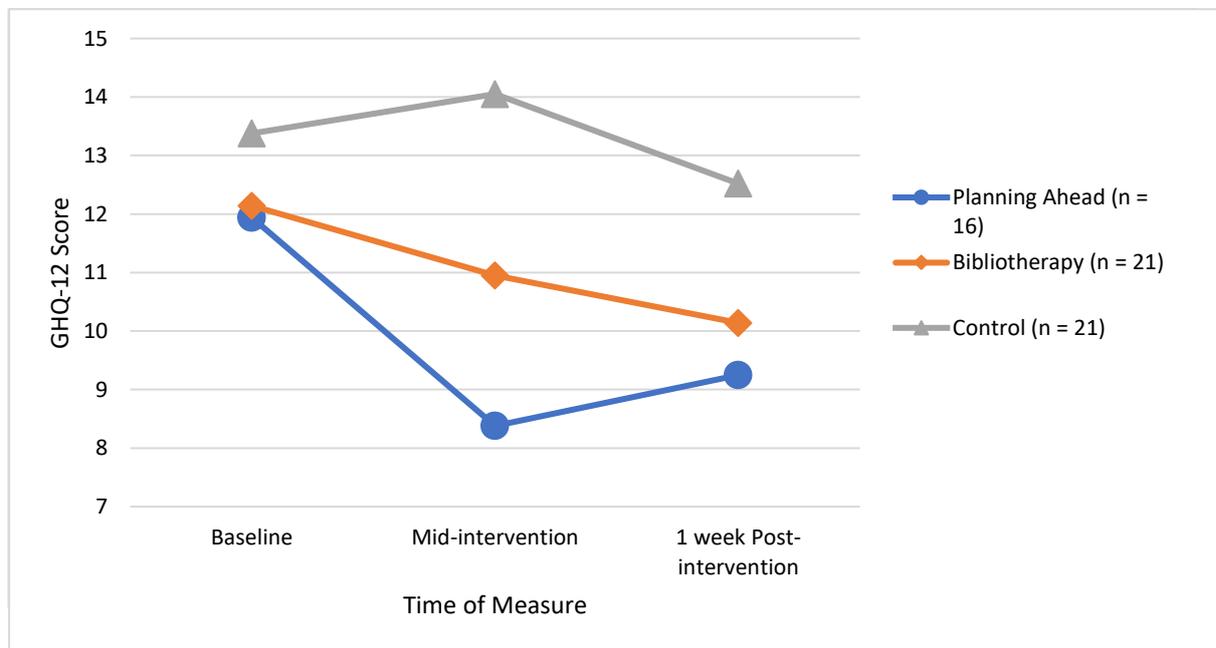


Figure 3 – Psychological distress (mean GHQ-12 scores) at baseline, mid-intervention and 1 week post-intervention for all three conditions

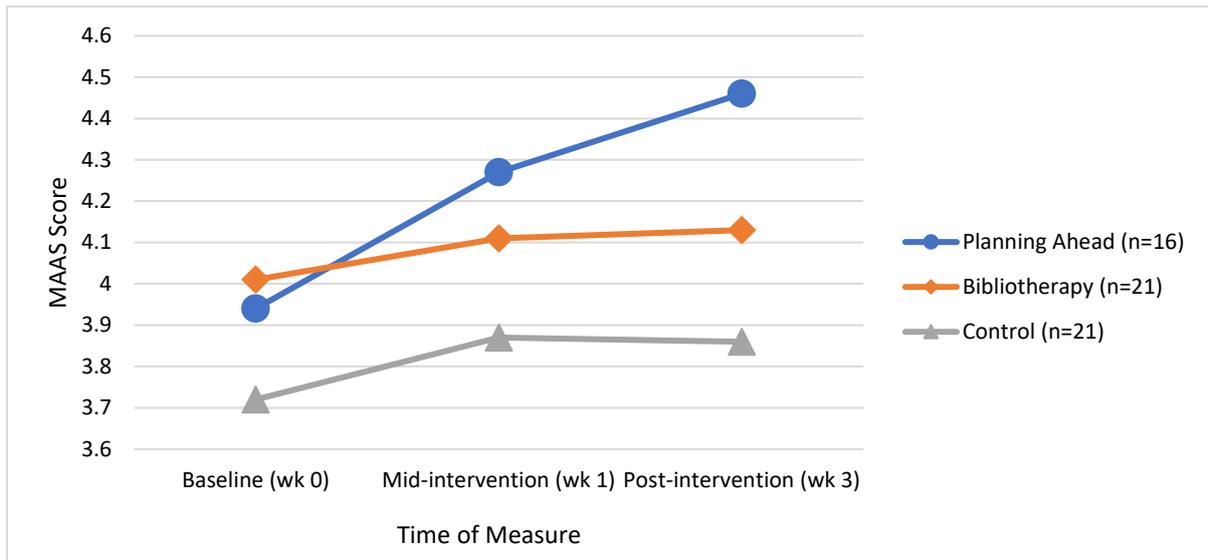


Figure 4 – mindfulness (mean MAAS score) at baseline, mid-intervention and post-intervention, whereby higher score indicate that they are more mindful

### Follow-up and Maintenance of Change

A Chi Square test was performed to investigate the relation between intervention type and continuation of the exercise after the allocated two-week period. The relationship was significant,  $\chi^2(2, N = 36) = 10.51, p = .001$ . Inspection of frequencies revealed that participants in the bibliotherapy group were less likely to continue their exercise compared to participants in the planning ahead group. Only 2 (9.5%) participants out of 21 continued the exercise, versus 9 (60%) out of 15 continuing in the Planning Ahead group, see Figure 5.

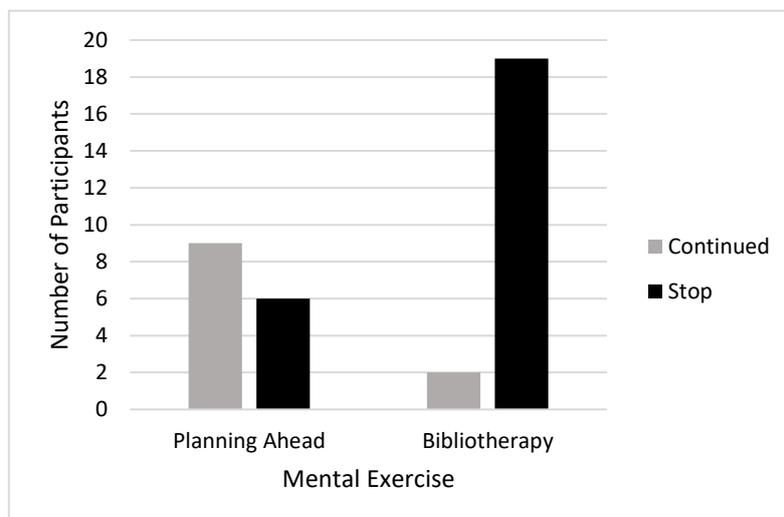


Figure 5 – number of participants that continued the exercise after the allocated two-week period, as a function of what mental exercise group they were allocated to.

To see whether the effects were maintained at follow-up we conducted a second repeated measures ANCOVA (3X3), which included the follow-up measures as well as the mid- and post-intervention measures. If the changes were not maintained then a Time X Condition interaction effect would be expected. We did not find a Time X Condition interaction effect for any of the measures, thus suggesting that the changes described in the first ANCOVA were maintained at follow-up. However, bibliotherapy GHQ-12 scores were not significantly different to those of controls in this second ANCOVA (ANCOVA adjusted mean difference = 2.39,  $p = .076$ ), which could suggest that the effect of bibliotherapy on psychological distress is lost at follow-up. See Table 4 and Figure 6 for means at each time point including follow-up.

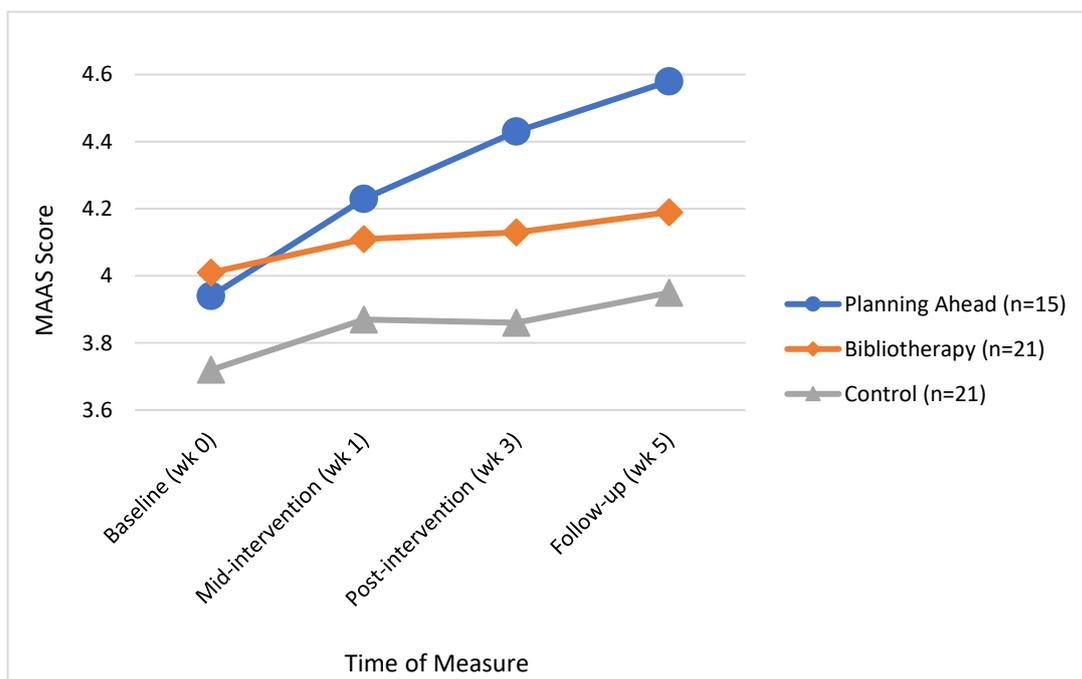


Figure 6 – Mindfulness (mean MAAS scores) from baseline to follow up (n= 57)

Table 4

Outcome measures at baseline, mid-intervention, 1-week post-intervention and 3-week post-intervention follow-up ( $n = 57$ )

	Planning Ahead ( $n = 15$ )		Bibliotherapy ( $n = 21$ )		Control ( $n = 21$ )	
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>
<b>WEMWBS</b>						
Baseline (wk 0)	51.87	(5.54)	48.81	(8.21)	48.05	(5.87)
Mid-intervention (wk 1)	52.73	(5.35)	51.48	(8.16)	47.57	(8.31)
Post-intervention (wk 3)	51.67	(8.46)	50.76	(7.00)	47.33	(8.99)
Follow-up (wk 5)	54.33	(6.55)	50.48	(9.22)	48.29	(7.44)
<b>GHQ-12</b>						
Baseline (wk 0)	11.27	(3.94)	12.14	(4.40)	13.38	(5.10)
Mid-intervention (wk 1)	8.33	(4.14)	10.95	(4.38)	14.04	(5.58)
Post-intervention (wk 3)	9.20	(4.71)	10.14	(2.73)	12.52	(6.41)
Follow-up (wk 5)	8.73	(4.83)	11.05	(4.96)	13.14	(5.97)
<b>MAAS</b>						
Baseline (wk 0)	3.94	(0.56)	4.01	(0.65)	3.72	(0.79)
Mid-intervention (wk 1)	4.23	(0.69)	4.11	(0.62)	3.87	(0.77)
Post-intervention (wk 3)	4.43	(0.83)	4.13	(0.71)	3.86	(0.87)
Follow-up (wk 5)	4.58	(0.98)	4.19	(0.83)	3.95	(0.82)

### Effects of Continuing the Exercise

Seeing as students were asked at the 3-week post-intervention follow-up whether or not they continued their mental exercise (see Table 5), we decided to analyse these results and see whether continuing the exercise resulted in a greater benefit. Due to only 2 participants in the bibliotherapy group continuing their exercise, we could only conduct the following analysis on the Planning Ahead group. A 2X2 mixed model ANOVA investigating effects from 1 week post-intervention to follow-up did not reveal a significant interaction between time and continuation for the WEMWBS,  $F(1, 13) = .21, p = .651$ , GHQ-12,  $F(1, 13) = 1.22, p = .290$  or MAAS,  $F(1, 13) = .203, p = .660$ .

Table 5

Outcome measures from baseline to 3-week post-intervention follow-up for the intervention groups as a function of whether they continue the exercise after the allocated 2-week period.

	<b>Planning Ahead</b>				<b>Bibliotherapy</b>			
	Continue (n = 9)		Stop (n = 6)		Continue (n = 2)		Stop (n = 19)	
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>
<b>WEMWBS</b>								
Baseline (wk 0)	51.22	(6.16)	52.83	(4.83)	44.00	(12.73)	49.32	(7.94)
Mid-intervention (wk 1)	53.78	(6.38)	51.17	(3.19)	54.50	(6.36)	51.16	(8.4)
Post-intervention (wk 3)	53.89	(8.72)	48.33	(7.50)	52.00	(7.07)	50.63	(7.17)
Follow-up (wk 5)	56.11	(7.67)	51.67	(3.44)	52.50	(6.36)	50.26	(9.58)
<b>GHQ-12</b>								
Baseline (wk 0)	12.11	(4.14)	10.00	(3.58)	8.00	(2.83)	12.58	(4.35)
Mid-intervention (wk 1)	7.33	(4.92)	9.83	(2.14)	11.00	(4.24)	10.95	(4.50)
Post-intervention (wk 3)	8.56	(4.45)	10.17	(5.35)	8.50	(0.71)	10.31	(2.81)
Follow-up (wk 5)	8.67	(5.24)	8.83	(4.62)	5.50	(6.36)	11.63	(4.61)
<b>MAAS</b>								
Baseline (wk 0)	4.12	(0.56)	3.66	(0.48)	3.83	(0.99)	4.03	(0.65)
Mid-intervention (wk 1)	4.45	(0.67)	3.90	(0.61)	4.63	(0.61)	4.05	(0.61)
Post-intervention (wk 3)	4.63	(0.80)	4.12	(0.86)	4.23	(0.71)	4.12	(0.73)
Follow-up (wk 5)	4.82	(0.83)	4.21	(1.15)	4.30	(0.90)	4.18	(0.84)

### Effect Sizes

With a small sample, differences of reasonable effect sizes may be non-significant when statistically tested; examining effect sizes will help determine whether there is reason for replication of the study with a larger sample. We chose to calculate Cohen's  $d$  using the following formula:  $(\text{ANCOVA adjusted } M_1 - \text{ANCOVA adjusted } M_2) / \text{pooled } SD$ . Effect sizes are shown in Table 6; interestingly, effects for wellbeing, particularly for bibliotherapy vs. control, were small-medium sized, but these differences were not statistically significant in the ANCOVA.

Table 6

Effect sizes (Cohen's *d*) calculated using ANCOVA adjusted means

	Planning Ahead vs Control <i>d</i>	Bibliotherapy vs Control <i>d</i>	Planning Ahead vs Bibliotherapy <i>d</i>
<b>Mid-intervention (week 1)</b>			
Wellbeing (WEMWBS)	0.35	0.41	0.12
Psychological Distress (GHQ-12)	1.08	0.56	0.60
Mindfulness (MAAS)	0.29	0.02	0.33
<b>Post-intervention (week 3)</b>			
Wellbeing (WEMWBS)	0.17	0.36	0.18
Psychological Distress (GHQ-12)	0.60	0.47	0.24
Mindfulness (MAAS)	0.48	0.02	0.52
<b>Follow-up (week 5)</b>			
Wellbeing (WEMWBS)	0.45	0.19	0.19
Psychological Distress (GHQ-12)	0.74	0.35	0.45
Mindfulness (MAAS)	0.48	0.04	0.52

## Qualitative Findings

Participants were asked at the end of the study, during the 3-week follow-up questionnaire whether they had any comments about the study. Some comments from participants in the Bibliotherapy group regarding the exercise are quoted below, there were no such comments from the Planning Ahead group.

“I may start doing the exercises again considering how I have felt the since the study ended compared to during the study”

““I think this was a good study however I’m not sure I was the best participant as someone who doesn't enjoy poetry and finds reading to be a chore.”

## **Discussion**

### **Effectiveness of the Planning Ahead Exercise**

The overall pattern of results suggests that the planning ahead exercise is an effective intervention at reducing distress in university students; this finding is in line with our hypotheses and the past research findings by Meier (2014). Even after only being performed for two weeks, the planning ahead group showed a significant reduction in GHQ-12 scores compared to the control group, and this effect was large at mid-intervention. This effect was maintained at follow-up, thus suggesting that the planning ahead task has sustained effects on psychological distress after only being performed for a short time. However, subjective well-being was not significantly enhanced by the planning ahead task, but it did appear to improve as the trial progressed, thus suggesting that the intervention may have an effect on well-being but that this study may be too unpowered to detect smaller effects due to inadequate sample size.

### **Effectiveness of the Bibliotherapy Exercise**

Students performing the bibliotherapy task showed a decrease in psychological distress as indicated by a reduction in GHQ-12 scores that was significantly different to the control group; this is in line with our hypothesis and the promising results of the ReLit online bibliotherapy course. However, well-being did not appear to be enhanced by the bibliotherapy exercise. Although, there did appear to be a trend when we inspected the means, as subjective well-being scores did increase as the intervention progressed; these effects were small to medium-sized for poetry vs. control. It is questionable whether the effects on distress were maintained at follow-up, as bibliotherapy GHQ-12 scores were no longer significantly different to the control when the follow-up data was included in the analysis. Now that the bibliotherapy exercise has been found to reduce distress, future

research could aim to establish the maintenance of this change. We also gained qualitative feedback on the bibliotherapy task, which suggests that this particular task may prove more effective in individuals who have an interest in literature. Our participants were not informed of the nature of the exercises before the study began, as this would have biased the sample; a possible future direction for research into bibliotherapy could be to investigate the effectiveness of this intervention in individuals who express an interest in literature.

### **Ease of Integration**

Our results revealed that participants in the planning ahead group were significantly more likely to continue the task after the two-week allocated period, compared to students performing the bibliotherapy task. Such a finding suggests that students find it easier to integrate planning ahead into their everyday schedule compared to the bibliotherapy task. This is a very important aspect of the effectiveness of an intervention, because any intervention that aims to improve mental health is futile if it cannot be integrated into the individual's day-to-day life. One way both exercises could be adjusted to improve integrability is via a mobile phone app, whereby individuals are reminded to do the exercises, could record their plans in their phone and have access to poems when they are out and about. Additionally, a possible reason why participants did not continue the bibliotherapy task may have been because they were told which poems to read each night, and this stopped after the two-week allocated period – a mobile phone app could suggest poems to individuals depending on their mood. Past research has suggested that informal, internet-based interventions are more likely to be used by students, particularly those with higher levels of psychological distress (Ryan et al., 2010), hence a mobile phone app could have similar efficacy, in addition to improving the integrability of the bibliotherapy task. Moreover, the ReLit foundation found promising results with their online bibliotherapy course, a study

directly testing the effects of this specific programme on well-being and distress would be useful.

### **Effects on Mindfulness**

Students performing the planning ahead exercise showed significantly higher mindfulness scores compared to the control group at post-intervention and follow-up, thus suggesting that this exercise increased everyday levels of mindfulness and it could be possible that this is what drives the reduction in distress. However, it is also possible that increased mindfulness is just a by-product of the exercise. Nevertheless, there are benefits that come with improved mindfulness, including improved academic performance (Bennet & Dorjee, 2016) and more adaptive stress processing (Weinstein, Brown & Ryan, 2009). Thus, the planning ahead exercise can be seen to have a beneficial effect on mindfulness, the implications of which extend to academic performance and future mental health.

Interestingly, mindfulness scores were significantly higher in the planning ahead group compared to the bibliotherapy group. This finding is not in line with to our hypothesis; it may be the case that the bibliotherapy exercise increased mindfulness for that particular task, but this does not transfer to everyday life.

### **Implications of Findings**

Our findings, could have implications in terms of early mental health interventions. Students have poorer mental health than the general population (Stewart-Brown et al., 2000) and hence finding simple and fast-acting interventions could prove useful in preventing psychological distress developing into a more serious mental health issue – both bibliotherapy and planning ahead significantly reduce psychological distress after just two weeks. Additionally, improving student mental health could also have beneficial effects in

terms of academic performance, as poor mental health is known to predict a decline in academic performance (Andrews and Wilding, 2004).

### **Limitations and Future Directions**

Although our study yielded promising results, it is not without its faults. One of our most prominent limitations is small sample size. We anticipated a far greater recruitment rate, as our recruitment email reached around 6000 undergraduate students, but we ended up with a final sample of only 58 participants. Despite our smaller than expected sample size, we did find reasonable sized effects on well-being for the bibliotherapy and planning ahead groups (both vs. control) at mid- and post-intervention, and at follow-up for the planning ahead, this suggests that a larger trial should be run in order to detect and confirm these effects. If future larger trials are to be run, it is important to consider possible reasons for the poor recruitment rate. One possible reason is that the commencement of the trial coincided with the start of the academic year, a time when students are trying to readjust to university life after the summer vacation, therefore it may be useful to run the trial during the second term when students are more settled.

Our study took place over a very short time frame (one academic term) and the intervention was only performed for two weeks. Future studies should evaluate these techniques when performed for a longer duration as the effects may be even greater the longer the exercises are performed. In addition to this, experience sampling over a longer period could prove useful as students' mood fluctuates throughout the term/year (Cooke et al., 2006), and having more regular measures (i.e. every week) would give a more reliable indication of well-being and stress.

Oxford is a particularly demanding university and terms are structured very differently to other universities (3 intense 8 week long terms per year), therefore future research should try and conduct such trials across multiple universities to gain results that are more representative of the university student population as a whole.

We conducted multiple statistical analyses and our sample size is relatively small, it is important to acknowledge the possibility that some significant results arose by chance, hence a larger trial of these exercises is now needed.

## **Conclusion**

Overall, our results replicate those of Meier's (2014), whereby planning ahead resulted in a rapid reduction in psychological distress, but we failed to extend those findings to enhanced well-being. Interestingly, we found that the planning ahead task led to improved mindfulness which was maintained at follow-up, and this could have beneficial effects in the way of improvements in academic performance and reduced vulnerability to future stress. In addition to this, we also found that these changes in distress and mindfulness were maintained at follow-up. Additionally, the bibliotherapy task also led to reductions in psychological distress, but not enhancement of subjective well-being. However, well-being did appear to be on an upward trajectory for both the planning ahead and bibliotherapy groups as the trial progressed. Future studies should investigate the efficacy of these exercises in larger samples and across multiple universities as they could have beneficial effects on student well-being and serve as early-interventions, by preventing the development of mental illness.

## **Acknowledgments**

I would like to thank my supervisors, Professor David M Clark and Dr Jennifer Wild for all their support, guidance and patience during my research. I would also like to express my gratitude to Professor Sir Jonathan Bate and Dr Paula Byrne for their guidance on the bibliotherapy task and their generosity in donating copies of their book, 'Stressed Unstressed'. Finally, I would like to thank all my participants for taking part.

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**Appendix I**  
**Screening Questionnaire**

Thank you for volunteering to take part in the study! First we would like you to answer a few questions about yourself and your interests. For our research to have meaningful results we need to have participants from a variety of backgrounds and with a variety of characteristics. This unfortunately means that not everyone who kindly volunteers gets to take part in the full study. Completion of this questionnaire will help us select a variety of different students to take part. You will be informed at the end of this survey whether you have been selected to take part. All your information will be treated as strictly confidential.

What is your gender?

- Male
- Female

What is your date of birth? (dd/mm/yyyy)

What is your mobile phone number? (this will be used by the researcher strictly for purposes of the study such as reminders and task details)

What subject do you study at university?

- Archeology and Anthropology
- Biochemistry (Molecular and Cellular)
- Biological Sciences
- Biomedical Sciences
- Chemistry
- Classical Archeology and Anthropology
- Classics
- Classics and English
- Classics and Modern Languages
- Classics and Oriental Studies
- Computer Science
- Computer Science and Philosophy

- Earth Sciences (Geology)
- Economics and Management
- Engineering Science
- English Language and Literature
- English Language and Modern Languages
- European and Middle Eastern Languages
- Fine Art
- Geography
- History
- History (Ancient and Modern)
- History and Economics
- History and English
- History and Modern Languages
- History and Politics
- History of Art
- Human Sciences
- Law (Jurisprudence)
- Materials Science
- Mathematics
- Mathematics and Computer Science
- Mathematics and Philosophy
- Mathematics and Statistics
- Medicine
- Modern Languages
- Modern Languages and Linguistics
- Music
- Oriental Studies
- Philosophy and Modern Languages
- Philosophy, Politics and Economics (PPE)
- Philosophy and Theology

- Physics
- Physics and Philosophy
- Psychology (Experimental)
- Psychology, Philosophy and Linguistics (PPL)
- Theology and Religion
- Theology and Oriental Studies

Please select the division your subject belongs in (if you are unsure check here: <http://www.ox.ac.uk/about/divisions-and-departments>)

- Humanities
- Social Sciences
- Mathematical, Physical and Life Sciences
- Medical Sciences

**Mood Questionnaire:** The following questions are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describe how you have been feeling this PAST WEEK (including today). Tick the statement you picked. Be sure to read all the statements in each group before making your choice.

1

- I do not feel sad
- I feel sad
- I am sad all the time and can't snap out of it
- I am so sad or unhappy that I can't stand it

2

- I am not particularly discouraged about the future
- I feel discouraged about the future
- I feel I have nothing to look forward to
- I feel that the future is hopeless and that things cannot improve

3

- I do not feel like a failure

- I feel I have failed more than the average person
- As I look back on my life, all I can see is a lot of failure
- I feel I am a complete failure as a person

4

- I get as much satisfaction out of things as I used to
- I don't enjoy things the way I used to
- I don't get real satisfaction out of anything anymore
- I am dissatisfied or bored with everything

5

- I don't feel particularly guilty
- I feel guilty over many things I have done or should have done
- I feel quite guilty most of the time
- I feel guilty all the time

6

- I don't feel I am being punished
- I feel I may be punished
- I expect to be punished
- I feel I am being punished

7

- I don't feel disappointed in myself
- I am disappointed in myself
- I am disgusted with myself
- I hate myself

8

- I don't feel I am any worse than anybody else

- I am critical of myself for my weaknesses or mistakes
- I blame myself all the time for my faults
- I blame myself for everything bad that happens

9

- I don't have any thoughts of killing myself
- I have thoughts of killing myself, but would not carry them out
- I would like to kill myself
- I would kill myself if I had the chance

10

- I don't cry any more than usual
- I cry more now than I used to
- I cry all the time now
- I used to be able to cry, but now I can't cry even though I want to

11

- I am not more irritated now than I ever am
- I get annoyed more easily than I used to
- I feel irritated all the time now
- I don't irritated at all by the things that used to irritate me

12

- I have not lost interest in other people or activities
- I am less interested in other people or things than before
- I have lost most of my interest in other people or things
- It's hard to get interested in anything

13

- I make decisions about as well as I ever could

- I put off making decisions more than I used to
- I have greater difficulty in making decisions than before
- I can't make decisions at all anymore

14

- I don't feel I look any worse than I used to
- I am worried that I am looking old or unattractive
- I feel that there are permanent changes in my appearance that make me look unattractive
- I believe I look ugly

15

- I can work about as well as before
- It takes extra effort to get started at doing something
- I have to push myself very hard to do anything
- I can't do any work at all

16

- I can sleep as well as usual
- I don't sleep as well as I used to
- I wake up 1-2 hours earlier than usual and find it hard to get back to sleep
- I wake up several hours earlier than I used to and cannot get back to sleep

17

- I don't get more tired than usual
- I get tired more easily than I used to
- I get tired from doing almost anything
- I am too tired to do anything

18

- My appetite is not worse than usual

- My appetite is not as good as it used to be
- My appetite is much worse now
- I have no appetite at all anymore

19

- I haven't lost much weight, if any, lately
- I have lost more than 5 pounds
- I have lost more than 10 pounds
- I have lost more than 15 pounds

20

- I am no more worried about my health than usual
- I am worried about physical problem such as aches and pains; or upset stomach; or constipation
- I am very worried about physical problems, it's hard to think of much else
- I am so worried about my physical problems that I cannot think about anything else

21

- I have not noticed any recent changes in my interest in sex
- I am less interested in sex than I used to be
- I am much less interested in sex now
- I have lost interest in sex completely

Thank you for taking the time to complete the mood questionnaire. There are just a few more questions for you to answer! Please read carefully through each statement and select the answer that applies to you.

Would you classify yourself as a 'sporty' person?

- Yes
- No

Are you currently receiving any mental health treatment, including drug treatment and/or counselling

- Yes
- No

In the past have you received any mental health treatment, including drug treatment and/or counselling?

- Yes
- No

Do you play a musical instrument?

- Yes
- No

## Appendix II Exercise Instructions

### Planning Ahead (from Meier 2014)

**Thank you for filling in the first questionnaire. Now we are ready to go!**

You have been allocated to one of our mental exercise groups. Congratulations! I'd now like to briefly explain the exercise. *Please read the below instructions carefully.* Don't worry, it's not too complicated. In any case - if you have questions, do not hesitate to contact me [researcher email here].

#### **The Planning Ahead Exercise:**

Life at university can be an exciting experience, but it can also be stressful. With all the new impressions coming in, sometimes it can be difficult to keep track of your day to day activities, plans and duties. For this reason, planning ahead for tomorrow can be a useful tool that helps you to structure your day, and focus on the things that are important to you. Sometimes when we are busy we forget about doing the things that we really enjoy, in addition to any things that we have to do. However, allowing some time each day for the things you enjoy is important as it provides a counterbalance to any stresses and strains. The feeling of structure and control that comes from planning may also help you to feel more at ease when things are getting busy. As you become better at planning ahead, you will hopefully feel more relaxed and more ready to deal with the things that come up in your day.

#### **Your assignment is as follows:**

Every night for the next two weeks, set aside 10 minutes before you go to bed. Use the time to *briefly review what is coming up tomorrow and plan for the day.* You may use a notebook or your computer to write about the events, but it is important that you have a physical record of what you wrote. It is not enough to do this exercise in your head. Each night before you go to bed, think about what you need to do and what you want to do tomorrow and write it down. For example, you might say you are planning to go to the gym tomorrow, finish your essay, or email your tutor about a particular problem. Do think about things you might enjoy

doing, such as having a coffee with a friend, listening to your favourite music, taking a stroll in the park, or going out for dinner. Try to include at least one enjoyable activity, even if the day is very rushed and the activity can only be short. On less rushed days you might want to be more generous to yourself! Whatever your plan, write it down briefly. From the second day onwards, start your 10 minutes by briefly reviewing the day that has just passed. Think about what you did and did not manage to do that day, but be kind to yourself. Do not criticise yourself if you were not able to do everything you aimed to do that day. Then move on and write out your plan for tomorrow.

Keeping track of your activities may seem awkward at first, but stick with it for a couple of weeks - it will get easier!

See this link for an example of how to plan ahead and what sorts of things you might include:

<https://www.youtube.com/watch?v=8ieLDzC4mtM>

Every 3 days you will be sent a text message reminding you about the task and highlighting certain parts of the instructions.

### **Okay, here is a quick summary**

- **Each night before you go to bed, plan what you will do tomorrow**
- **Be sure to include some things you'll enjoy as well as what you have to do**
- **Write down your plan as brief notes**
- **From the second day onwards, briefly review the day that has just passed before planning for tomorrow.**
- **Be kind to yourself in the review: Credit, not criticism**

**We know that your time is limited, so please do not spend more than 10 minutes on the task each night.**

It is important that you perform the task regularly over the next 2 weeks (starting this Monday, 24<sup>th</sup> October). We recommend that you keep the instructions close to hand (i.e. next to your bed or stuck on the wall); this will make it easier to follow the exercise.

In one week's time and one week after you finish the exercises you will be sent a link to a set of questionnaires; these will assess your well-being, general health and day-to-day experiences. At the end of the 2 weeks, you no longer have to complete the exercise, but we encourage you to do so. We will also send out a follow up questionnaire, 3 weeks later (end of term); please remember to fill these questionnaires in as they will be vital for the study.

We hope you enjoy participating! And if you have any questions at any point during the study please do not hesitate to contact me [researcher email here].

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## **Bibliotherapy**

**Thank you for filling in the first questionnaire. Now we are ready to go!**

You have been allocated to one of our mental exercise groups. Congratulations! I'd now like to briefly explain the exercise. *Please read the below instructions carefully.* Don't worry, it's not too complicated. In any case - if you have questions, do not hesitate to contact me [researcher email here].

### **The Mindful Reading of Poetry Exercise:**

Attending university can be a stressful and daunting experience. The aim of this exercise is to help you take hold of your life and feel calm and in control during this potentially stressful time. Sometimes in life we get so caught up in what we are doing and what we need to do next that we forget to live in the present and be aware of what is going on around you in exactly that moment in time. By setting aside 10 minutes each day to mindfully read a poem you can help yourself feel in more aware and in control, and hopefully this will make you feel more relaxed as well as more focused. Learning to read mindfully can be a tricky task at first, but you'll quickly get the hang of it, and it will hopefully lead you to a calmer and clearer mental and physical state!

### **So, how do you read a poem mindfully?**

For the next 2 weeks, set aside 10 minutes each night before you go to bed. *Make yourself comfortable* and try to *clear your head* of all worries. *Focus on your breathing* and attempt to make it slow and regular - deep breaths in and out. Imagine yourself in a quiet and serene place, such as a woodland, or a city at the break of dawn before it gets hectic. Now *read the assigned poem* (from the *Stressed Unstressed* book) through slowly, trying to immerse yourself in its words as you do so. Read the poem through again, aloud this time, trying to recreate each image in your head one at a time. After doing so connect the components and try to imagine them as a whole, this does not necessarily have to be a scene, but try to bring all the parts together in order to derive some sort of meaning. Don't fixate on understanding every single word in each poem (i.e. don't get a dictionary out to check the meaning), this is particularly the case with the older poems in the book.

Such mindful reading can give you a break from your own world of stresses, slowly come back to the real world and *notice how much calmer you feel* from that momentary escape from everyday stresses. **When you feel stressed in everyday life (i.e. the next day) remember how you felt after mindfully reading the poem and try taking a moment to try and feel that way again before continuing your day.**

See this link for an example of how to mindfully read a poem

<https://www.youtube.com/watch?v=W2lP9AXWHB8&feature=youtu.be>

Every 3 days I will send you a text message directing you to the poems we want you to read for the next few nights. Please make sure you read the assigned poem for any given night.

**Here is a summary of what we would like you to do each evening:**

- ✓ **Make yourself comfortable**
- ✓ **Take a moment to clear your head of worries**
- ✓ **Focus on your breathing, attempt to make it slow and regular.**
- ✓ **Imagine yourself in a quiet, serene place.**
- ✓ **Read the assigned poem through first in your head to get a feel for it**
- ✓ **Then read it through again, but aloud this time, trying to re-create each image in your head one at a time**
- ✓ **Then try and combine the components to create a fuller picture and derive some sort of meaning.**
- ✓ **Slowly come back to the real world and notice how different and calmer you feel.**
- ✓ **If you feel stressed at any point during the next day take a moment to breathe and remember this feeling. Attempt to return to feeling this way again and then continue your day.**

**We know your time is limited, so please do not spend more than 10 minutes on the task each night.**

It is important that you perform the task regularly over the next 2 weeks (starting this Monday, 24<sup>th</sup> October) and read the poems that we assign you. We recommend that you keep the instructions close to hand (i.e. next to your bed or stuck on the wall); this will make it easier to follow the exercise.

In one week's time and one week after you finish the exercises you will be sent a link to a set of questionnaires; these will assess your well-being, general health and day-to-day experiences. At the end of the 2 weeks, you no longer have to complete the exercise, but we encourage you to do so. We will also send out a follow up questionnaire, 3 weeks later (end of term); please remember to fill these questionnaires in as they will be vital for the study.

We hope you enjoy participating! And if you have any questions at any point during the study please do not hesitate to contact me [researcher email here].

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## **Appendix III**

### **Text Message Reminders**

*Reminders were sent at 4pm every 3 days.*

#### **Text Reminder 1** (sent on day one of the intervention)

##### Bibliotherapy Group:

Hi, this is \_\_\_\_\_! Today is the first day of your mental exercises.

Please remember to do your 10-minute mental exercise each evening. For the next few days we would like you to read poems from the 'stopping' chapter, please read the short introduction at the beginning of the chapter.

Here are the poems you should read for the next few days:

Sunday (today) - Five Senses (pg 13)

Monday (tomorrow) - Green (pg 17)

Tuesday - A Noiseless Patient Spider (pg 20)

##### Planning Ahead Group:

Hi, this is \_\_\_\_\_! Today is the first day of your mental exercises. Please remember to do your 10-minute mental exercise each evening. Remember to write down your brief plan for the next day either on paper or on a computer - it is not enough to do this exercise in your head.

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#### **Text Reminder 2**

##### Bibliotherapy Group

Hi! Please remember to do your 10-minute mental exercise each evening. For the next few days we would like you to read poems from the 'composing' chapter, please read the short introduction at the beginning of the chapter.

Here are the poems you should read for the next few days:

Wednesday (today) - Upon Westminster Bridge (pg 25)

Thursday (tomorrow) - Bright Star (pg 27)

Friday - Open Winter (pg 28)

##### Planning Ahead Group

Hi! Please remember to do your 10-minute mental exercise each evening. Remember to include at least one enjoyable activity in your plan, even if the day is very rushed and it can only be short.

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#### **Text Reminder 3**

##### Bibliotherapy Group

Hi! Please remember to do your 10-minute mental exercise each evening. For the next few days we would like you to read poems from the 'meditating' chapter, please read the short introduction at the beginning of the chapter.

Here are the poems you should read for the next few days:

Saturday (today) - The Lake Isle of Innisfree (pg 45)

Sunday (tomorrow) - Birds at Evening (pg 46)

Monday - from Narrow Road to the Deep North (pg 39 & 40)

##### Planning Ahead Group

Hi! Please remember to do your 10-minute mental exercise each evening. Remember to start your 10 minutes by briefly reviewing the day that has just passed.

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#### **Text Reminder 4**

##### **Bibliotherapy Group**

Hi! Please remember to do your 10-minute mental exercise each evening. For the next few days we would like you to read poems from the 'stress-beating' chapter, please read the short introduction at the beginning of the chapter.

Here are the poems you should read for the next few days:

Tuesday (today) - She Walks in Beauty (pg 59)

Wednesday (tomorrow) - Sea Fever (pg 62)

Thursday - Morning Has Broken (pg 68 & 69)

##### **Planning Ahead Group**

Hi! Please remember to do your 10-minute mental exercise each evening. When reviewing the day that has just passed remember to be kind to yourself: credit, not criticism

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#### **Text Reminder 5**

##### **Bibliotherapy Group**

Hi! Please remember to do your 10-minute mental exercise each evening. For the next couple of days we would like you to read poems from the 'remembering' chapter, please read the short introduction at the beginning of the chapter.

Here are the poems you should read for the next couple of days:

Friday (today) - Love and Friendship (pg 81)

Saturday (tomorrow) - The Echoing Green (pg 75)

##### **Planning Ahead Group**

Hi! Please remember to do your 10-minute mental exercise each evening. Remember to include something you enjoy in your plan for the day, even if it can only be short.

## **Appendix IV Outcome Measures**

Welcome to the first/second/third/final set of questionnaires for our study into student well-being! Thank you for taking part. We are tremendously grateful for your help! The following questionnaires will measure wellbeing, general health and day-to-day experiences. It is important that you read the instructions to each questionnaire carefully as some questionnaires ask you about your life and how you have been feeling and thinking in general, others ask about how you have been in the last two.

These questionnaires are completely confidential, it is important that you answer as honestly as possible.

You will need about 15 minutes to complete this set of questionnaires. Please try to ensure you won't be disturbed during this time and that you give honest responses. All answers are confidential.

### **Well-being Questionnaire (Warwick Edinburgh Mental Well-being Scale)**

How happy are you? Good mental wellbeing (some people call it happiness) is about more than avoiding mental health problems. It means feeling good and functioning well. This tool uses WEMWBS, a scale which is often used by scientists and psychologists to measure wellbeing. Please go through the following statements and tick the box that best describes your thoughts and feelings over the last two weeks.

1. I've been feeling optimistic about the future

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

2. I've been feeling useful

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

3. I've been feeling relaxed

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

4. I've been feeling interested in other people

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

5. I've had energy to spare

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

6. I've been dealing with problems well

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

7. I've been thinking clearly

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

8. I've been feeling good about myself

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

9. I've been feeling close to other people

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

10. I've been feeling confident

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

11. I've been able to make up my own mind about things

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

12. I've been feeling loved

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

13. I've been interested in new things

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

14. I've been feeling cheerful

- None of the time
- Rarely
- Some of the time
- Often
- All of the time

**General Health Questionnaire (GHQ-12)**

Next, please complete the following 12 questions. We want to know how your health has been in general over the past week (including today). Please read the questions below and each of the four possible answers. Select the response that best applies to you.

1. Have you recently been able to concentrate on what you're doing?

- Better than usual
- Same as usual
- Less than usual
- Much less than usual

2. Have you recently lost much sleep over worry?

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

3. Have you recently felt that you are playing a useful part in things?

- More so than usual
- Same as usual
- Less so than usual
- Much less than usual

4. Have you recently felt capable of making decisions about things?

- More so than usual
- Same as usual
- Less than usual
- Much less than usual

5. Have you recently felt constantly under strain?

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

6. Have you recently felt you couldn't overcome your difficulties?

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

7. Have you recently been able to enjoy your normal day to day activities?

- More so than usual
- Same as usual
- Less to than usual
- Much less than usual

8. Have you recently been able to face up to your problems?

- More so than usual
- Same as usual
- Less so than usual
- Much less than usual

9. Have you recently been feeling unhappy or depressed?

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

10. Have you recently been losing confidence in yourself?

- No at all
- No more than usual
- Rather more than usual
- Much more than usual

11. Have you recently been thinking of yourself as a worthless person?

- Not at all
- No more than usual
- Rather more than usual
- Much more than usual

12. Have you recently been feeling reasonably happy, all things considered?

- More so than usual
- Same as usual
- Less so than usual
- Much less than usual

**Day-to-Day Experiences** (Mindful Attention Awareness Scale)

We want to know about your day-to-day experiences. Below is a collection of statements about your everyday experiences.

Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience (based on the past week, including today).

Please answer according to what really reflects your experience rather than what you think your experience should be.

Please click your answer.

1. I could be experiencing some emotion and not be conscious of it until some time later.

- 1 - Almost always
- 2 - Very Frequently
- 3 - Somewhat Frequently
- 4 - Somewhat Infrequently
- 5 - Very Infrequently
- 6 - Almost Never

2. I break or spill things because of carelessness, not paying attention, or thinking of something else.

- 1 - Almost Always
- 2 - Very Frequently
- 3 - Somewhat Frequently
- 4 - Somewhat Infrequently
- 5 - Very Infrequently
- 6 - Almost Never

3. I find it difficult to stay focused on what's happening in the present.

- 1 - Almost Always
- 2 - Very Frequently
- 3 - Somewhat Frequently
- 4 - Somewhat Infrequently
- 5 - Very Infrequently
- 6 - Almost Never

4. I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.

- 1 - Almost Always
- 2 - Very Frequently
- 3 - Somewhat Frequently
- 4 - Somewhat Infrequently
- 5 - Very Infrequently
- 6 - Almost Never

5. I tend not to notice feelings of physical tension or discomfort until they really grab my attention.

- 1 - Almost Always
- 2 - Very Frequently
- 3 - Somewhat Frequently
- 4 - Somewhat Infrequently
- 5 - Very Infrequently
- 6 - Almost Never

6. I forget a person's name almost as soon as I've been told it for the first time.

- 1 - Almost Always
- 2 - Very Frequently
- 3 - Somewhat Frequently
- 4 - Somewhat Infrequently
- 5 - Very Infrequently
- 6 - Almost Never

7. It seems I am 'running on automatic', without much awareness of what I'm doing.

- 1 - Almost Always
- 2 - Very Frequently
- 3 - Somewhat Frequently
- 4 - Somewhat Infrequently
- 5 - Very Infrequently
- 6 - Almost Never

8. I rush through activities without being really attentive to them.

- 1 - Almost Always
- 2 - Very Frequently
- 3 - Somewhat Frequently
- 4 - Somewhat Infrequently
- 5 - Very Infrequently
- 6 - Almost Never

9. I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.

- 1 - Almost Always
- 2 - Very Frequently
- 3 - Somewhat Frequently
- 4 - Somewhat Infrequently
- 5 - Very Infrequently
- 6 - Almost Never

10. I do jobs or tasks automatically, without being aware of what I'm doing.

- 1 - Almost Always
- 2 - Very Frequently
- 3 - Somewhat Frequently
- 4 - Somewhat Infrequently
- 5 - Very Infrequently
- 6 - Almost Never

11. I find myself listening to someone with one ear and doing something else at the same time.

- 1 - Almost Always
- 2 - Very Frequently
- 3 - Somewhat Frequently
- 4 - Somewhat Infrequently
- 5 - Very Infrequently
- 6 - Almost Never

12. I drive places on 'automatic pilot' and then wonder why I went there.

- 1 - Almost Always
- 2 - Very Frequently
- 3 - Somewhat Frequently
- 4 - Somewhat Infrequently
- 5 - Very Infrequently
- 6 - Almost Never

13. I find myself preoccupied with the future or the past.

- 1 - Almost Always
- 2 - Very Frequently
- 3 - Somewhat Frequently
- 4 - Somewhat Infrequently
- 5 - Very Infrequently
- 6 - Almost Never

14. I find myself doing things without paying attention.

- 1 - Almost Always
- 2 - Very Frequently
- 3 - Somewhat Frequently
- 4 - Somewhat Infrequently
- 5 - Very Infrequently
- 6 - Almost Never

15. I snack without being aware that I'm eating.

- 1 - Almost Always
- 2 - Very Frequently
- 3 - Somewhat Frequently
- 4 - Somewhat Infrequently
- 5 - Very Infrequently
- 6 - Almost Never

Thank you so much for taking the time to complete all the questions! Please make sure you go to the very end of this questionnaire and press '>>' below to ensure completion.

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*For the final outcome questionnaire, the following questions were added:*

If you were allocated to a mental exercise group, did you continue your mental exercise after the allocated 2 week period?

- Yes
- No
- I was not allocated to a mental exercise group (i.e. you were in the control group)

If you have any comments about the study please write them below...

**Appendix V**  
**Compliance Questionnaire**  
*Sent at the end of the two-week intervention period*

Thank you so much for taking part in our study into student well-being. We would just like to ask you a few quick questions about your experience of the study over the past two weeks. Please answer them as honestly as possible. These questions will only take you a few minutes to answer.

Were you assigned to a mental exercise group?

- Yes
- No

How many nights, out of the 14, did you manage to complete the mental exercise?

\_\_\_\_\_

Do you think you will be continuing your assigned mental exercise for the next coming weeks?

- Yes
- No