



A quasi-experimental study into the influence of a short-term positive psychological intervention on social anxiety, gratitude and happiness in undergraduates

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### ABSTRACT

The introduction of Positive Psychological Interventions (PPI's) has been recognised to represent the ethos of the relatively novel area of Positive Psychology, regarding the value of developing positive individual traits. Numerous PPI's have been praised for their ability to influence an individual's experience of gratitude and happiness and reducing social anxiety. Research has suggested that focussing on these traits in undergraduates have shown benefits in academic achievement and social and moral development, therefore justifying investigating the use of the short-term 'Three Good Things,' intervention for influence on these variables.

On completion of pre-intervention measures of social anxiety, gratitude and happiness, forty-six undergraduate students were randomly allocated to a short-term 'Three Good Things' intervention or an active control group, where they were required to complete the corresponding activity for one week. A series of 2x2 mixed ANOVA's were conducted, where despite observation of positive changes in happiness and gratitude, and negative changes in social anxiety for participants in the experimental group from pre to post-intervention, all interactions were non-significant. This limits implications for the use of the 'Three Good Things' task on influencing these variables. However, various moderators of PPI's have been recognised for their influence on the effectiveness of these methods, thus proposing the need for further research.

<b>KEY WORDS:</b>	POSTIVE PSYCHOLOGICAL INTERVENTION	THREE GOOD THINGS	GRATITUDE	SOCIAL ANIXETY	HAPPINESS
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## Introduction

'Positive Psychology,' can be regarded as a relatively novel and newly developed area within the established principle of Psychology. Developed by Seligman and Csikszentmihalyi, positive psychology can be defined as '...at the subjective levels it is about valued subjective experiences...[at] individual level, it is about positive personal traits...[at] group level, it is about the civic virtues' (Seligman and Csikszentmihalyi, 2000:5). More simply, the area values the importance of focussing on the development of positive traits and behaviour, in attempt to ameliorate subjective and psychological wellbeing.

The innovative ethos of this area provides noticeable distinctions from 'traditional' psychological research, where focus has been largely based on human pathology and treatment, however new principles value building on personal qualities instead. Domination of the 'disease model' approach in previous literature (Seligman and Csikszentmihalyi, 2000) can be questioned for its ignorance of the importance of positive life experiences and limitations in understanding human functioning, thus impeding development of psychological theory (Sheldon and King, 2001).

Plentiful research is available which supports the importance of alleviating wellbeing, where Pressman and Cohen (2005) found happiness being an outcome and a foundation of advantageous life outcomes such as career and relationship success. Additionally, a meta-analysis conducted by Lyubomirsky et al. (2005), established positive correlations between positive emotion and success in education, social life and health. Furthermore, Pekrun et al. (2002) found that positive mood in the classroom was directly associated with student's accomplishment of learning and performance and observed positive correlations between happiness and grade achievement (Marsh et al., 2006). Carver (2003) noted that individuals with higher happiness scores were more optimistic and motivated to seek goal achievement and although not directly associated with experiences in education, possible generalisability may support the use of cultivating happiness within universities, as increased motivation could be beneficial within optional education.

Further benefits for undergraduates can be supported by Frisch (2004) who found that those who had positive subject-wellbeing were more likely to graduate and would benefit from high quality social relationships due to these more positive outlooks (Diener and Seligman, 2002). In consideration of these findings, justification to sample undergraduates can be supported by the evidence establishing benefits of enhancing positive mood, thus raising possible opportunity for practical applications being developed for these individuals.

Regarding promoting the importance of encouraging positivity and therefore reflecting the ethos and values of Positive Psychology, various methods named 'Positive Psychological Interventions' (PPI's) have been developed over the past decade. PPI's can be defined as preventative or intentional methods aimed at '...cultivating positive feelings, positive cognitions and positive wellbeing...' (Sin and Lyubomirsky, 2009:467), where aims to enhance wellbeing and develop attributes such as optimism and perseverance, are valued.

Seligman et al. (2005) theorised that PPI's can be supported to redirect our focus onto positive life occurrences and away from negative aspects, which have been noted to have detrimental affects onto an individual's sense of wellbeing (Öhman

and Mineka, 2001). Negativity bias refers to the focus on negative aspects of life and the increasing impact that negative reinforcement has on an individual's learning and wellbeing (Logue et al., 1981). Positive Psychological Interventions, therefore, value the importance of recognising positivity and being optimistic rather than focussing attention onto disadvantageous and negative occurrences.

Where the benefits of implementing PPI's can be widely recognised, such as in research by Seligman et al. (2005) which established advantages including increasing positive mood and decreasing depressive symptoms, the duration they are carried out for is important to consider. Where a multitude of studies support a wide range of duration periods, from three days (Burton and King, 2004) to ten weeks (Emmons and McCullough, 2003), a meta-analysis conducted by Bolier et al. (2013) concluded that PPI's of a longer duration length were more effective than those of a more restricted interval. However, although this research also established large effect sizes in some focus studies of a shorter duration, those PPI's which extended up to four weeks were more effective than those above this threshold.

A meta-analysis by Sin and Lyubomirsky (2009) also established similar findings, where explanations involved participants having greater opportunities to transfer these new activities into habitual actions; however this duration was only positive in cultivating lasting experiences of positive psychological wellbeing but not depression. However, a study by Lyubomirsky et al. (2005) established increased effectiveness of a PPI when participants completed it once a week compared to three times, where explanations surround proposals of the detrimental effect of boredom influencing possibilities to increase happiness. Furthermore, a study by Seligman et al. (2005) established significant increases in gratitude, even when the PPI had been conducted in a single occurrence. This would therefore question whether the required duration to perform a PPI is dependent on the activity itself, or the characteristics of the individual which judges the appropriate period and in turn, moderates their effectiveness.

The person-fit hypothesis, as explained by Lyubomirsky and Layous (2013) in relation to moderators of PPI's, explains that an individual's attributes may predict the intervention's usefulness in achieving their hypothesised intentions. Along with increased self-efficacy and the motivation to work towards goals (Layous et al., 2012), the effectiveness of interventions have been noted to depend on the presence of specific individual issues. Bolier et al.'s (2013) systematic literature search found an increase in value of the interventions for participants who had specific psychosocial problems, thus offering proposals of the use of PPI's for individuals experiencing particular impairments. Conversely, this research can be questioned, as no lasting effects persisted in terms of reducing negative symptoms in depressed individuals however short terms effects were established. However, the reduction of symptoms of social anxiety in cancer patients was observed after they engaged in PPI's (Sheard and Maguire, 1999), where not only does this express further rationale for the use of these interventions, representing their use in relation to clinically related issues could further strengthen their function.

'Social Anxiety' (SA) has been defined as 'a persistent fear of one or more social or performance situations...[where they fear]... scrutiny by others...' (APA, 2013). Research conducted by Steger and Kashdan (2006) revealed associations between SA and negative mood, and although correlations lack the ability to establish

causality, it may be useful to study whether using techniques to alter negative mood would allow relief of symptoms associated with the disorder. Theoretically, it may be hypothesised that by focussing on positive emotions and aiming interventions at cultivating these experiences, SA may be reduced thus providing rationale of effort to seek findings.

Where changes of personal circumstances in the transition to university may prompt more justified avoidance type behaviours associated with milder SA symptoms such as situations involving staff and student interaction (Russell, 2008), it may be useful to supply access to interventions for students with these moderate indications. Improving student experiences and helping them overcome SA in university may help them achieve both academically and socially, as evidence suggests increased risks of exam failure in socially anxious students (Stein and Kean, 2000). Furthermore, providing interventions to reduce SA can be rationalised due to findings which established increase likelihood of avoidance of social experiences such as lectures (Topham, 2009) and even failure to graduate (Wittchen, 1999).

Where research based on SA and interventions to alleviate symptoms can be viewed as dominated by clinical methods such as Cognitive Behavioural Therapy (CBT), these techniques may not be deemed as suitable for those with milder symptoms. Research by Fava et al. (2005) established the benefits of well-being therapy (WBT) in reducing SA in participants, to which can be recognised as similar to PPI's in terms of its value of cultivating positivity. However, not only did findings represent that WBT was more effective when combined with CBT, the participants in the study had clinical diagnoses of the disorder, thus questioning their use in supporting individuals experiencing milder symptoms.

Alternate benefits of PPI's can be offered by Waters (2011) who found that when interventions were performed on school aged individuals, cultivation of the student gratitude and happiness resulted. Not only does this represent the usefulness of PPI's, the resulting experiences appear to be in line with the ethos of schooling as a whole, as standards not only focus on academic achievement, but valuing moral and social development as well (DfE, 2014), thus supporting interest in sampling undergraduate students.

The enhancement of gratitude, defined as, 'a sense of thankfulness and joy in response to receiving a gift,' (Peterson and Seligman, 2004:554) can also be recognised by Sheldon and Lyubomirsky (2006). When compared to participants in control conditions, individuals who partook in PPI's experienced heightened levels of gratitude and optimism, thus supporting their impact. Additionally, associations between experiencing gratitude and happiness can be supported by Emmons and McCullough (2007), who found after ten weeks, participants who wrote optimistically experienced increased positive emotions, when compared to those writing negatively.

The benefits of encompassing enhanced levels of gratitude can be supported by McCullough et al. (2002) who found associations with less negative emotions and increased experiences of positive emotions, where higher levels were associated with amplified reporting of happiness (Watkins et al., 2003). Where certain experimental studies have established a significant increase in gratitude of participants within a PPI intervention group compared to a 'hassles' and a control

condition (Froh et al., 2008), interpretation should be cautious due to the 'hassles' group involving an activity designed purposely to elicit negative emotion, thus proposing explanations for these significantly greater findings.

However, due to plentiful evidence being available which supports the usefulness of PPI's, this promotes questions as to why these methods are unrepresented in the area. Such research has admired the use of writing interventions, where numerous studies have found participants who engage in reflective writing, expressing optimism and detailing 'Intensively Positive Experiences,' found heightened experiences of positivity and wellbeing, when compared to those who did not partake (Burton and King, 2004; Lyubomirsky et al., 2006).

The evidence therefore gives supports for the need for additional research, which, as an aim of the current study, may aid the further representativeness of its use for reduction of social anxiety and the cultivation of optimism and happiness within undergraduates.

The aim of the current study was therefore to research whether a short-term PPI influenced undergraduates self-report scores of social anxiety, gratitude and happiness, where comparisons were made between scores collected at pre and post-intervention stages. Comparisons were also made between scores at each assessment time (Pre-Intervention vs. Post-Intervention) for both participant groups (PPI vs. Active Control Group).

A quasi-experimental method was employed where participants were randomly assigned to an experimental (PPI) or an active control condition (Control), where interest was based on whether completing the 'Three Good Things' intervention may have influenced these findings. Confirmation of such predictions would be due to an analysed positive directional change of participant scores of happiness and gratitude, and a decrease in scores of social anxiety, from pre to post-intervention assessment times for participants in the experimental condition.

It was firstly hypothesised that self-report scores of gratitude would significantly increase for participants in the experimental group (PPI) between pre and post-intervention assessment (Week 1 vs. Week 2), when compared to participants in the active control group (Control), whose scores were hypothesised to remain stable. Secondly, self-report scores of social anxiety would significantly decrease for participants in the experimental group (PPI) between pre and post-intervention assessment (Week 1 vs. Week 2), when compared to participants in the active control group (Control), whose scores were hypothesised to remain stable. Finally, self-report scores of happiness would significantly increase for participants in the experimental group (PPI) between pre and post-intervention assessment (Week 1 vs. Week 2), when compared to participants in the active control group (Control), whose scores were hypothesised to remain stable.

## **Method**

### **Design**

A 2x2 mixed quasi-experimental design was used, where each independent variable consisted of two levels. The between-subjects independent variable was the group

participants were allocated to (Positive Psychological Intervention vs. Active Control) and the within-subjects independent variable was the time of assessment of the dependent variables (Pre-Intervention-Week 1 vs. Post-Intervention-Week 2).

The dependent variables were scores of social anxiety (SA), gratitude and happiness, measured by self-report questionnaires both at pre and post-intervention stages, which were measured regardless of their allocated group.

Participants were randomly allocated to one of two groups;

Group 1: Positive Psychological Intervention (PPI): 'Three Good Things' Task  
Group 2: Active Control Group: Spellings Task

## Participants

An a priori-power analysis was performed using G\*Power-3.1.9.2 (Faul et al., 2007) which revealed a minimum of 28 participants were required (Appendix-31). Out of the 103 participants initially recruited, 7 did not consent and 50 were removed from the sample due to failing to complete the questionnaire or due to technical issues regarding the email address provided. This resulted in a 44.66% response rate.

A total number of 46 participants which were randomly allocated to each group (PPI:  $n= 22$  vs. Control:  $n= 24$ ) were included in the analysis and represented the number of participants who completed both the pre and post-intervention questionnaires, on completion of the weeks' task (PPI vs. Control). The only exclusion criteria was that the minimum age required to participate was 18, in order to overcome issues surrounding gaining informed consent, where ages ranged from 19-49 ( $M= 23.61$ ,  $SD= 6.38$ ).

The final sample consisted of 17.39% of males ( $n= 8$ ; Ages:  $M= 21.88$ ,  $SD= 2.03$ ) and 82.61% of females ( $n= 38$ ; Ages:  $M= 23.97$ ,  $SD= 6.92$ ) and although this demographic data was collected, this did not influence random group allocation. Descriptive statistics are displayed in Table 2.

Participants were recruited using opportunity sampling via the Manchester Metropolitan University Participation Pool (Sona Systems, 2015), where participants were rewarded with 150 points to support them with future research. Sampling was also conducted through advertisement on the MMU 'Facebook' page, on the researcher's social media outlets and distributing leaflets around the university (Appendix-1).

Opportunity sampling allowed the researcher to tailor the advertisement to recruit undergraduates alone, which resulted in MMU students mainly being recruited but also some participants from other universities.

**Table 2**

**Means and Standard Deviations for Age of Participant according to Gender in Each Group (PPI vs. Control) and in the Total Sample**

Gender of Participant	Participant Group								
	PPI= n= 22			Control n= 24			Total N= 46		
	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>	<i>N</i>	<i>M</i>	<i>SD</i>
<b>Males</b>	3	22.33	.38	5	21.60	2.61	8	21.88	2.03
<b>Females</b>	19	26.32	9.30	19	21.63	1.86	38	23.97	6.92

### Materials

Participants were required to have internet access to complete the pre and post-intervention questionnaires and intervention tasks (PPI vs. Control), being it within their university or personal residence. Participants were also required to have a student number and student email address for reasons not only regarding proving their undergraduate status, but to access intervention instructions.

In both the pre and post-intervention stages, three questionnaires were used to measure SA, happiness and gratitude, which included the Liebowitz Social Anxiety Scale, the Gratitude Questionnaire and the Oxford Happiness Questionnaire. The 'Three Good Things' task was used as the intervention for the experimental group and a spellings task was used for the active control group. 'Qualtrics' (Qualtrics, 2015) was used collect responses and to track participation.

### The Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987)

The LSAS is a 24-item self-report scale, used to measure social anxiety by assessing how situations in the past week have affected the user (Appendix-2). The scale includes 13-items relating to performance anxiety and 11-items relating to social situations (Item 5: Talking to someone in authority). Each item requires feedback for the extent to which participants feel avoidance and fear of social and performance situations, where responses are submitted using a 4-point Likert-scale (Likert, 1932; 0=none to 3=severe for fear and 0=never to 3=usually for avoidance measures). When calculated, higher scores reflect increased levels of SA and vice versa. Scores from 0-54 reflect mild, 55-65 moderate, 66-80 marked, 81-95 severe and scores above 95 reflect very severe SA, where scores will range from 0-144. The LSAS scores high for internal consistency and reliability with a Cronbach's alpha score of  $\alpha=.96$  ('fear' subscales  $\alpha=.92$  and 'avoidance' subscales  $\alpha=.92$ ; Heimberg et al., 1999).



### **The Gratitude Questionnaire (GQ-6; McCullough et al., 2002)**

The GQ-6 is a 6-item self-report questionnaire designed to assess an individual's gratitude of daily experiences (Appendix-3). All items focus on the users' disposition to gratitude (Item 4: I am grateful to a wide variety of people) and are scored using a 7-point Likert Scale (1=Strongly Disagree to 7= Strongly Agree). Before scores are calculated, items 3 and 6 need to be reverse scored where scores of 1 will be reversed to 7, 2 to 6 and so on, where total scores will range from 6-42. Higher scores generally reflect higher levels of gratitude and vice versa. The GQ-6 scores high for internal consistency and reliability, where Cronbach's alpha scores range from  $\alpha=.76$  to  $\alpha=.84$  (McCullough et al., 2002).

### **The Oxford Happiness Questionnaire (OHQ; Hills and Argyle, 2002)**

The OHQ is a 29-item self-report questionnaire designed to measure happiness. All items focus on the user's happiness (Item 9: Life is good) where agreeableness is scored using a 6-point Likert scale (1=Strongly Disagree to 6= Strongly Agree) (Appendix-4). Before total scores are calculated, items 1, 5, 6, 10, 13, 14, 19, 23, 24, 27, 28 and 29 need to be reverse scored, where scores of 1 are reversed to 6, 2 to 5 and so on. Total scores will range from 29-174 where higher scores generally reflect higher levels of happiness and vice versa. The OHQ scores high for internal consistency and reliability where a Cronbach's alpha score is  $\alpha=.91$  (Hills and Argyle, 2002).

Permission of use for questionnaires was not required as the purpose was educational and non-commercial.

### **'Three Good Things' Task (Seligman et al., 2005)**

This task is a PPI developed by Seligman et al. (2005) which aims to increase happiness and promote positive psychological wellbeing, where participants in the experiment condition were required to complete this activity (Appendix-10). The process encourages users to redirect attention towards positive aspects of life rather than focussing on repairing failures. Users are required to reflect on and document three positive occurrences of that day, regardless of their significance. Participants are encouraged to reflect on why these situations may have occurred and attribute the reasons. Permission of use (Appendix-5).

### **Active Control Task**

The task involved an online activity which required control group participants to enter three words which began with a character proposed by instructions (Appendix-11). This task was selected due to its neutral nature in terms of its influence on self-report scores of the dependent variables, as it was hypothesised that participants assigned to this condition would experience no difference in their scores from pre to post-intervention testing. As identified by Akobeng (2005), the use of an active control group was important in collecting unbiased data, which previously may have been affected due to the experimental group's participation in a task and the control simply supplying passive, pre and post-intervention questionnaire responses.

## Procedure

On approval of the 'Application for Ethical Approval Form' (Appendix-6), participants were recruited by opportunity sampling where they were provided an electronic link directing them to the study.

The link directed them to the participation information sheet (Appendix-7), which informed participants on the purpose of the study to aid their decision to consent. The information sheet also included information assuring them that any data provided would be anonymised and kept confidential and their right to withdraw at anytime was reminded. Participants were required to create a unique code which was used to identify anonymised participants in the data collection process and to be quoted to the researcher if they wished to withdraw (Appendix-8). They were then provided with a consent form which they were encouraged to read and select 'Yes' or 'No' (Appendix-9). A forced response function was selected to prevent participants continuing with questionnaires, if informed consent had not been provided.

Demographic information was then collected including gender and age, where a minimum age of eighteen was set in order to continue participation. This followed with a section asking for the participant's student number and email, not only to confirm their student status but to provide a point of contact for further stages.

Participants then completed three questionnaires (LSAS, GQ-6 and OHQ) and were then randomly assigned to one of two groups (PPI vs. Control). Participants were individually emailed instructions for the day one of intervention (Appendix-12 and 19) and on completion, were emailed instructions for day two and so on until day seven (Appendix-13-18 and 20-25). Each day, participants were prompted to enter their unique code to allow the researcher to identify their completion of the task. On completion of day seven, participants were emailed a link directing them to the post-intervention questionnaires (Appendix-26), which repeated scales used at pre-intervention.

On completion, participants were submitted a participation debrief (Appendix-27) which included full information about the aims and hypotheses of the study and were provided with contact details for support services, in the unlikely event that participants experienced negative psychological wellbeing as a result of participation.

## Ethical Considerations

The current study was conducted in accordance with the British Psychological Society Code of Ethics and Standards Guidelines (BPS, 2009; 2014) and the MMU's Guidelines on Good Research Practise, where data collection did not commence until ethical approval had been granted through acceptance of the researchers 'Application for Ethics Approval Form' (Appendix-6). Ethical guidelines were followed vigilantly where participants were reminded of their right to withdraw throughout, informed consent was collected and they were fully debriefed where the control group was also offered access to the PPI group's task at request. Although confidentiality was not possible due to analysis requirements, all data was anonymised via a unique code assigned by each participant, where raw data was only accessible to the researcher and their supervisor which was stored on a password protected computer.

## Results

### Preparation of Data

All raw data was inputted into IBM-SPSS Statistics version 22.0 for Windows which was used to compute all data analyses and to create all relevant tables<sup>1</sup> and graphs via data outputs (Appendix-28). After relevant data had been inputted, including scores provided by participants from both groups for both pre and post-intervention assessment of all measures (LSAS, GQ-6 and OHQ), appropriate item-scores were reversed on the GQ-6 and OHQ, according to the authors instructions (Appendix 2-4). Totals scores were then computed for all measures at both assessment times (Pre-Intervention-Week 1 vs. Post-Intervention-Week 2), according to the authors instructions (Appendix 2-4). Tests for normality were carried out and histograms were generated, where assessment of skewness revealed all data to be at a satisfactory level, which met George and Mallery's (2011) guidelines. A table representing these statistics is available in Appendix-29 and histograms illustrating this normality in Appendix-30, which represent they were in acceptable bounds. Tests for internal consistency were carried out on items of all measures at both assessment times, where all Cronbach's Alpha ( $\alpha$ ) Coefficients were above the satisfactory level of .70 (Nunnally, 1978). Cronbach's Alpha scores can be viewed in Table 1, which includes coefficients for all measures at both assessment times.

**Table 1**

**Cronbach's Alpha ( $\alpha$ ) Coefficients and Confidence Intervals for all Measures at both Assessment Times**

Measure	Time of Assessment					
	Pre- Intervention (Week 1)			Post-Intervention (Week 2)		
	Reliability	95% Confidence Interval		Reliability	95% Confidence Interval	
		$\alpha$	Lower Level		Upper Level	A
<b>Liebowitz Social Anxiety Scale (LSAS)</b>	.97**	.96	.98	.97**	.96	.98
<b>Gratitude Questionnaire (GQ-6)</b>	.82*	.73	.89	.78	.66	.86
<b>Oxford Happiness Questionnaire(OHQ)</b>	.94**	.91	.96	.95**	.93	.97

Note: *F*-test acceptable reliability= 0.70, \*  $p < .01$ , \*\* $p < .001$

<sup>1</sup> All tables and figures are in-line with APA formatting guidelines (American Psychological Association, 2013)

## Manipulation Checks

To ensure that participants engaged with their allocated task, simple manipulation checks were assigned.

With regards to the control group's 'Spellings' task, participants were required to enter their words in provided text box on the online form, where evidence of text entry could be viewed by the researcher to confirm their engagement. Participants were also required to select a tick box after completion.

Although providing a text box was unsuitable for participants in the PPI group to enter their 'Three Good Things' due to confidentiality issues, a tick-box selection was required to inform the researcher that they had completed the activity.

## Hypothesis One: Gratitude

To assess whether participants levels of gratitude significantly increased as a result of the 'Three Good Things' task, self-report scores of gratitude were obtained by the Gratitude Questionnaire (GQ-6) at pre and post-intervention stages (Week 1 vs. Week 2) Means and standard deviations of participant gratitude scores for both assessment times and both participant groups were calculated and are displayed in Table 3.

**Table 3**

**Means and Standard Deviations of Participant Scores on the GQ-6 at Both Assessment Times (Pre-Intervention vs. Post-Intervention) and for Both Participant Groups (PPI vs. Control)**

Time of Assessment	Participant Group					
	PPI		Control		Total Sample	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Pre-Intervention (Week 1)	33.23	6.72	34.88	5.69	34.09	6.19
Post-Intervention (Week 2)	36.18	4.40	34.38	5.35	35.24	4.95

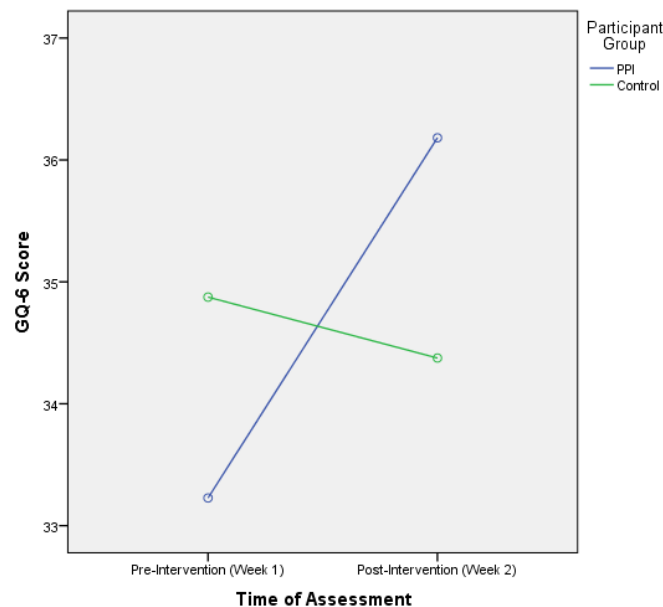
## Analysis of Variance

Mauchly's test was non-significant so sphericity was assumed where outputs representing these statistics are available in Appendix-28.

A 2 x 2 mixed factorial ANOVA was performed on the data where the between-subjects independent variable was the group participants were allocated to (PPI vs. Control) and the within-subjects independent variable was the time of completion of

the GQ-6 (Pre-Intervention-Week 1 vs. Post-Intervention-Week 2). The dependent variable was the participant's scores of gratitude measured by the GQ-6<sup>2</sup>.

There was a non-significant main effect for the time of completion (Pre-intervention vs. Post-Intervention) of the GQ-6,  $F(1,44)= 1.63$ ,  $p= .208$ ,  $\eta_p^2= .036$ . The main effect of group (PPI vs. Control) was non-significant,  $F(1,44)= 0.00$ ,  $p= .953$ ,  $\eta_p^2= .000$ . There was also a non-significant interaction between time of completion of the GQ-6 and group,  $F(1,44)= 3.23$ ,  $p= .079$ ,  $\eta_p^2= .068$ . Figure 1 reflects this interaction.



**Figure 1: A means plot to represent a non-significant interaction between the time of assessment of the GQ-6 (Pre-Intervention-Week 1 and Post-Intervention-Week 2) and the participant group (PPI vs. Control)**

This non-significant interaction would explain that any changes in participant self-report scores of gratitude from pre to post-intervention assessment times could not be assumed to be a result of the group they were assigned to (PPI vs. Control). Although a trend was evident due to the mean difference of self-report scores of gratitude between pre and post-Intervention assessment times being greater for the experimental group ( $MD= 2.95$ ) compared to the control group ( $MD= .50$ ) which implies acceptance of the hypothesised positive directional change, this interaction was non-significant so changes could not be assumed as a result of their allocated group (PPI vs. Control).

### Post Hoc Tests

Due to no significant interactions being established, post-hoc testing was not necessary.

<sup>2</sup> All reported significance values are two-tailed at alpha-level .05 unless otherwise stated.

## Hypothesis Two: Social Anxiety

To assess whether participants levels of social anxiety significantly decreased as a result of the 'Three Good Things' task, self-report scores of social anxiety obtained via the Liebowitz Social Anxiety Scale (LSAS) at pre and post-intervention stages (Week 1 vs. Week 2). Means and standard deviations of participant social anxiety scores for both assessment times and both participant groups were calculated and are available in Table 4.

**Table 4**

### Means and Standard Deviations of Participant Scores on the LSAS at Both Assessment Times and for Both Participant Groups

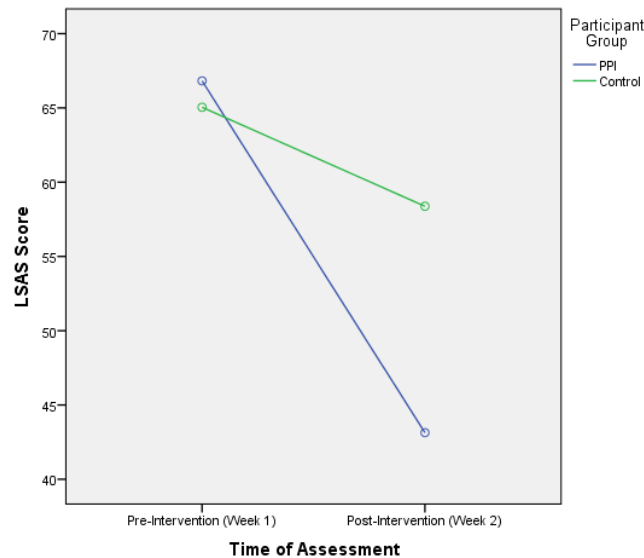
Time of Assessment	Participant Group					
	PPI <i>n</i> =22		Control <i>n</i> =24		Total Sample <i>N</i> =46	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Pre-Intervention (Week 1)	66.82	31.70	65.04	30.29	65.89	30.64
Post-Intervention (Week 2)	43.14	30.69	58.38	27.06	51.09	29.55

## Analysis of Variance

Mauchly's test was non-significant so sphericity was assumed (Appendix-28).

A 2 x 2 mixed factorial ANOVA was performed on the data where the between-subjects independent variable was the group participants were allocated to (PPI vs. Control) and the within-subjects independent variable was the time of completion of the LSAS (Pre-Intervention-Week 1 vs. Post-Intervention-Week 2). The dependent variable was the participants score of social anxiety measured by the LSAS.

There was a significant main effect for the time of completion (Pre-Intervention vs. Post-Intervention) of the LSAS,  $F(1,44) = 11.18$ ,  $p = .002$ ,  $\eta_p^2 = .203$  representing that there was a significant decrease in scores of social anxiety from pre ( $M = 65.89$ ,  $SD = 3.64$ ) to post-intervention assessment ( $M = 51.09$ ,  $SD = 29.55$ ) regardless of the group participants were assigned to (PPI vs. Control). There was a non-significant main effect for the intervention group,  $F(1,44) = 0.79$ ,  $p = .379$ ,  $\eta_p^2 = .018$ . There was also non-significant interaction between time of completion of the LSAS and the intervention group,  $F(1,44) = 3.52$ ,  $p = .067$ ,  $\eta_p^2 = .074$ . Figure 2 reflects this interaction.



**Figure 2: A means plot to represent a non-significant interaction between the time of assessment of the LSAS (Pre-Intervention-Week 1 and Post-Intervention-Week 2) and the participant group (PPI vs. Control)**

This non-significant interaction would explain that any changes in participant self-report scores of SA from pre to post-intervention assessment times could not be assumed to be a result of the group they were assigned to (PPI vs. Control). Although a trend was evident due to the mean difference of self-report scores of SA between pre and post-Intervention assessment times being greater for the experimental group ( $MD= 23.68$ ) compared to the control group ( $MD= 6.66$ ) which implies acceptance of the hypothesised negative directional change, this interaction was non-significant so changes could not be assumed as a result of their allocated group (PPI vs. Control).

### Post Hoc Tests

Due to no significant interactions being established, post-hoc testing was not necessary.

### Hypothesis Three: Happiness

To assess whether participants levels of happiness significantly increased as a result of the 'Three Good Things' task, self-report scores of happiness obtained via the Oxford Happiness Questionnaire (OHQ) at pre and post-intervention stages (Week 1 vs. Week 2). Means and standard deviations of participant scores from the OHQ for both assessment times and for both participant groups were calculated and are available in Table 5.

Table 5

**Means and Standard Deviations of Participant Scores on the OHQ at Both Assessment Times (Pre-Intervention vs. Post-Intervention) and for Both Participant Groups (PPI vs. Control)**

Time of Assessment	Participant Group					
	PPI <i>n</i> =22		Control <i>n</i> =24		Total Sample <i>N</i> =46	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Pre-Intervention (Week 1)	113.45	26.05	112.33	21.57	112.87	23.55
Post-Intervention (Week 2)	128.32	24.92	113.96	22.25	120.83	24.40

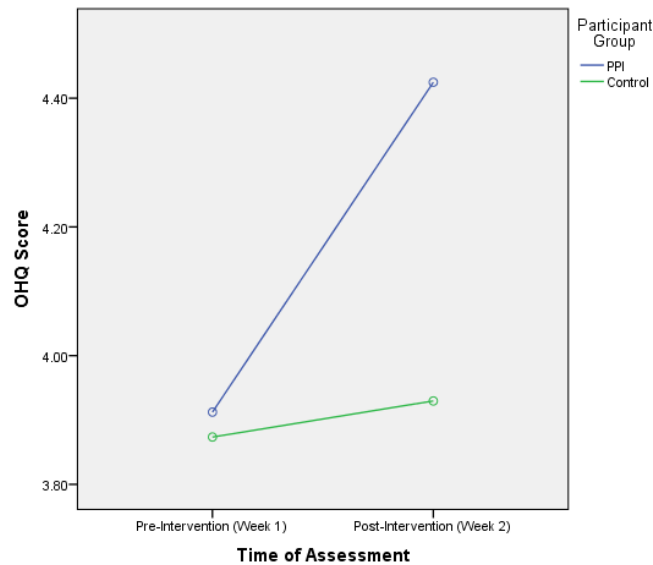
### Analysis of Variance

Mauchly's test was non-significant so sphericity was assumed (Appendix-28).

A 2 x 2 mixed factorial ANOVA was performed on the data where the between-subjects independent variable was the group participants were allocated to (PPI vs. Control) and the within-subjects independent variable was the time of completion of the OHQ (Pre-Intervention-Week 1 vs. Post-Intervention-Week 2) The dependent variable was the participants scores of happiness measured by the OHQ.

There was a significant main effect for the time of completion (Pre-Intervention vs. Post-Intervention) of the OHQ,  $F(1,44)= 5.25$ ,  $p= .027$ ,  $\eta_p^2= .107$ . There was a non-significant main effect of group (PPI vs. Control),  $F(1,44)= 1.67$ ,  $p= .203$ ,  $\eta_p^2= .037$ . There was a non-significant interaction between time of completion of the OHQ and the intervention group,  $F(1,44)= 3.38$ ,  $p= .073$ ,  $\eta_p^2= .071$ . Figure 3 reflects this interaction.





**Figure 3: A means plot to represent a non-significant interaction between the time of assessment of the OHQ Pre-Intervention–Week 1 and Post-Intervention–Week 2) and the participant group (PPI vs. Control)**

This non-significant interaction would explain that any changes in participant self-report scores of happiness from pre to post-Intervention assessment (Week 1 vs. Week 2) could not be assumed to be a result of the group they were assigned to (PPI vs. Control). Although a trend was evident due to the mean difference of self-report scores of happiness between pre and post-Intervention assessment times being greater for the experimental group ( $MD= 14.87$ ) compared to the control group ( $MD= 1.63$ ) which implies acceptance of the hypothesised positive directional change, this interaction was non-significant so changes could not be assumed as a result of their allocated group (PPI vs. Control).

### Post Hoc Tests

Due to no significant interactions being established, post-hoc testing was not necessary.

## Discussion

### Hypothesis One: Gratitude

Significant increases in gratitude were not found between pre and post-intervention assessment times of the GQ-6, for participants in the experimental group when compared to the control group. Despite a trend being recognised regarding the predicted positive change of gratitude scores in the experimental group (PPI), this interaction was non-significant so hypothesis one was rejected.

These results contradict research by Froh et al. (2008) who found that participants who completed a counting blessings (PPI) task experienced a significant increase in their scores of gratitude when compared to those in both a control group and a

'hassles' group. Although comparing scores of participants in the PPI and control groups can be viewed to support the effectiveness of this activity, caution should be taken when comparing results to a negative emotion-evoking task such as the 'hassles' group, as score differences are likely to be much greater. Due to the 'Three Good Things' task within the current study reflecting similarities to the counter blessings activity within this research, it would be appropriate to assume that similar results would have been established.

Although current findings seem to imply that this PPI is ineffective in significantly increasing reports of gratitude in undergraduates and therefore offering limited practical applications for their use, plentiful research can be recognised to contradict such findings, thus raising questions for the discrepancies.

Where a meta-analysis by Bolier et al. (2013) established that PPI's were more effective when conducted over longer durations, explanations into the non-significant interactions could surround issues of the intervention only lasting for one week. It would be appropriate to suggest that the duration should be extended if the study were to be replicated, which may give participants opportunities to embed the activity into their daily routine (Sin and Lyubomirsky, 2009) and therefore increase likelihood of significant changes being established. Due to time restraints, it was difficult to increase duration time, however as supported by Seligman et al. (2005), even a single occasion PPI was effective in increasing reporting of gratitude, therefore demonstrating this was not the single limitation.

### **Hypothesis Two: Social Anxiety**

Significant decreases in social anxiety (SA) were not found between pre and post-intervention assessment times of the LSAS, for participants in the experimental group when compared to the control group. Despite a trend being recognised regarding the predicted negative change of the SA scores in the experimental group (PPI), this interaction was non-significant so hypothesis two was rejected.

In relation to previous literature, the current findings oppose those established by Fava et al. (2005), who found that participation in well-being therapy (WBT), which shares similar values of PPI's regarding cultivating positive wellbeing, led to significant deductions of SA when compared to those not participating. Although this contradicts the current findings, application of this study should be vigilant not only due to WBT not wholly reflecting PPI's, but regarding results showing that reduction of SA was greater when combined with CBT, thus questioning PPI's effectiveness when utilising them independently. If this is the case, future research may consider using PPI's as an addition to traditional therapies, however this raises contradictions of the studies aims for targeting undergraduates with mild SA, who may not require clinical intervention.

Furthermore and in line with Fava et al.'s (2005) findings, although Bolier et al.'s (2013) meta-analysis represents the overall effectiveness of PPI's, results showed that these interventions were more efficient for individuals with specific psychosocial issues. Where the current study did not screen participants for baseline measurements of social anxiety, overall means showed low levels of SA across the whole sample during the pre-intervention assessment period, thus offering possible suggestions as to why significant reductions in SA were not observed. This would therefore represent the person-fit hypothesis (Lyubomirsky and Layous, 2013) as it

would be assumed that this PPI may not have been suitable for those with particular low levels of SA. Liebowitz's (1987) guidelines of intersections should be considered if future study were to commence (Appendix-2), where participants with mild SA scoring over 54 could be selected to participate in the experimental stage, therefore increasing likelihood of observing significant findings.

### **Hypothesis Three: Happiness**

Significant increases in happiness were not found between pre and post-intervention assessment times of the OHQ, for participants in the experimental group when compared to the control group. Despite a trend being recognised regarding the predicted positive change of happiness scores in the experimental group (PPI), this interaction was non-significant so hypothesis three was rejected.

This contradicts research by Seligman et al.'s (2005) which established that participation in PPI's led to increased positive mood, thus questioning the effectiveness of the 'Three Good Things' task in enhancing happiness in undergraduate samples. However, Waters (2011) study which established similar significant results, focussed on a younger school student sample. Initial explanations of the non-significant findings may involve questions regarding the differing levels of stress between undergraduates and school aged participants, as it may be assumed that increased pressure of university may affect commitment to completing the intervention. However, there is little evidence within previous literature to support this assumption thus proposing other explanations may present reasoning for opposition of previous findings.

Lyubomirsky et al.'s (2005) study may support further explanations, as they found that completing the PPI everyday increased participant boredom and lead to reductions of overall happiness. This study may aid justification of the non-significant results, as it was necessary for the current participants to complete the PPI consecutively for one week, therefore leading to possible propositions to maintain the amount of sessions but disperse them over a longer duration. However, Seligman et al.'s (2005) instructions to complete the 'Three Good Things' task consecutively were viewed as key to pursue, thus proposing for other alterations to be considered.

### **Limitations and Implications**

Although the current study may be questioned in terms of the findings contradicting much of the previous literature, the use of an 'Active Control Group' within a randomised control trial can be viewed to be much more effective method in collecting unbiased data (Akobeng, 2005). Where the current study allowed comparisons of data from two participant groups actively completing a selected task (PPI vs. Control) this allowed comparisons to be made between active participants rather than 'treatment as usual' or passive control groups, as apparent in much of the previous literature (Bolier et al., 2013).

Furthermore, even though random group assignment was conducted and as admired in allowing participants to have an equal chance of allocation (Kim and Shin, 2014), future research may consider a matched-pairs design. This technique may be viewed as useful for future replication as participants could be screened for a particular variable (eg. Social Anxiety) and be distributed equally between groups to

observe treatment effects with reduced possibility of random error occurring regarding participant characteristics (Mitchell and Jolley, 2012). However, due to the study concerning measurement of multiple dependent variables, matched-pairs allocation may be considered difficult and may result in excluding participants from the sample.

Finally, manipulation checks were not equal, as the control group were asked to type responses into a text box but the experimental group were not. This may have meant participants in the experimental group may not have completed the 'Three Good Things' task which they agreed, however due to ethical issues surrounding confidentiality of the information inputted, this reduced the researcher's options. Future research may use more advanced software to collect responses, where the researcher has no access and can only observe the presence of submitted text. However, participants may still be subject to experiencing social desirability bias (Bradburn et al., 2004) as lack of confidence in the confidentiality of their input may encourage contributions of desirable but dishonest responses.

Where future research may address particular limitations of the current study, this may increase possibilities of finding significant increases of happiness and gratitude and significant decreases in social anxiety. As research was restricted in terms of time constraints regarding participant sampling and the intervention duration, non-significant results could possibly be regarded as a result of such issues, however it is still important to consider the finding's implications. Improvements may lead to practical applications being developed such as short-term PPI interventions to support undergraduates with increased social anxiety and low levels of happiness and gratitude, with expectations of cultivating academic success and psychological wellbeing (Pekrun et al., 2002; Topham, 2009).

## **Conclusion**

The current study represented that the particular way in which the short-term intervention 'Three Good Things' task had been delivered, was ineffective in significantly increasing scores of gratitude and happiness and significantly decreasing scores of social anxiety in the undergraduate sample from pre to post-intervention assessment periods, thus rejecting hypotheses.

Overall, the findings are ineffective in suggesting rational practical applications as hypothesised, such as providing potential methods of self-help for undergraduates experiencing mild levels of social anxiety. Due to non-significant interactions being established, the need for further consideration is urged in order to cultivate likelihood of establishing significant results in future research.

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