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Does the Three Good Things Exercise Really Make People More Positive and Less Depressed? A study in Japan[1]

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Abstract

Objective: Seligman, Steen, Park, and Peterson (2005) reported that people who wrote down three good things (TGT) for a week exhibited significantly greater happiness and less depression. An online study was conducted to examine whether performing a similar exercise reduces depressive symptoms and increases positive affect (PA) in the Japanese population.

Methods: One thousand Japanese adults were randomly assigned to the TGT group or the control group. Participants in the TGT group were instructed to perform the TGT exercise at least twice a week for four weeks, whereas participants in the control group were told to record three past events.

Results: An increase in PA was observed in the TGT group at the post-test, but not at the one-month follow-up. There were no significant changes in depressive symptoms at the post-test or the one-month follow up in either group. Participants in the TGT group exhibited a significant increase in general trust at both the post-test and the one-month follow-up. A significant increase in this variable at the one-month follow-up was also observed in control participants.

Conclusion: Performing the TGT exercise increases PA, but this increase is temporary. The TGT exercise may be effective in enhancing general trust.

Keywords: Positive psychology, Three good things, Positive affect, Depression, General trust
JEL classification: I30

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Introduction

Happiness, or positive affect (PA), is a primary goal for the majority of human beings. In addition to its intrinsic value, PA has been shown to be advantageous to individuals and society in a number of ways. For example, increasing PA may lower the risk of coronary heart disease (Davidson, Mostofsk, & Whang, 2010). Moreover, PA may contribute to the maintenance of functional ability in the elderly (Hirosaki et al., 2012). Finally, happy people are more likely to become successful (Lyubomirsky, King, and Diener, 2005; De Neve and Oswald, 2012).

Depression management is also a significant issue worldwide (Moussavi, et al., 2007). For example, depression is a major risk factor for suicide (Dumais et al., 2005). In Japan, nearly 30,000 people commit suicide every year, and Japan's suicide mortality rate is fourth from the worst of 34 OECD (Organisation for Economic Co-operation and Development) countries (OECD, 2013). In addition, the economic cost of depression should not be overlooked. It is estimated that the economic burden of depression in Japan was 11 billion dollars in 2008 (Okumura and Higuchi, 2011).

Although there is concern that antidepressants may not be effective for mild-to-moderate depression (Fournier et al., 2010), antidepressants are by far the most common treatment for depression in Japan. While cognitive-behavioral therapy (CBT) is a well-known, clinically proven psychotherapy, the number of adequately trained

CBT therapists is extremely low. Thus, alternative options for the effective prevention and treatment of depression are necessary.

Positive psychology interventions may represent such an option. Seligman, Steen, Park, and Peterson (2005) reported that people who wrote down three good things they had experienced during the day before going to bed every day for a week exhibited significantly greater happiness and less depression. Moreover, this effect persisted for half a year. It would be remarkably advantageous if these findings could be replicated in other countries, such as Japan, because this exercise is very simple and inexpensive. If supported further, this exercise could potentially be recommended by governments and other public organizations to promote health and well-being, and even taught in schools, corporate training programs, and community gatherings.

However, the results of Seligman et al. (2005) have not been perfectly confirmed in other studies. Mongrain and Anselmo-Mattews (2012) replicated the study of Seligman et al. (2005) and found that the three good things exercise was associated with a higher level of happiness, but not a reduction in depressive symptoms. Similarly, a modified replication study by Gander, Proyer, Ruch, and Wyss (2013) failed to observe a relationship between the exercise and a reduction in depressive symptoms. In addition, as most research on positive psychology has been conducted in North America (Bolier

et al. 2013), it is not clear whether similar exercises are effective for East Asian people, including Japanese.

The aim of the present study was to determine whether the three good things exercise increases PA and reduces symptoms of depression in Japanese people. There were several differences between the present study and Seligman et al. (2005). First, participants were not required to perform the three good things exercise every day; rather, participants performed the exercise at least twice a week for 4 weeks. Lyumbomirsky, Sheldon, and Schkade (2005) suggested that interventions to enhance happiness were more effective when they were performed once a week than thrice a week; thus, we set the minimum requirement for exercise performance at twice a week. Second, the total duration in which participants performed the exercise was 4 weeks instead of 1 week. Meta-analyses of positive psychology found that the exercise tended to be more effective when performed for a longer period of time (Sin and Lyumbomirsky, 2009; Bolier et al., 2013). Similarly, Seligman et al. (2005) suggested that voluntarily continuing the exercise beyond the one-week period heightened the effect of the exercise. Thus, we had participants perform the exercise 4 weeks. Third, although we asked participants to perform the exercise at night, this was not an obligation. We were concerned that strictly limiting the timing in which the exercise could be performed would be burdensome for participants and ultimately increase

attrition, which is already high in Internet-based studies. In addition, it was impossible to determine whether participants actually performed the exercise before going to bed. Fourth, remuneration was provided to participants who performed the exercise for 4 weeks and completed the post-test and follow-up assessments. Finally, instead of the Steen Happiness Index (SHI), which was used in Seligman et al. (2005), we used measures of life satisfaction, optimism, general trust, PA, and negative affect (NA). To our knowledge, there was not a Japanese version of the SHI at the time of the present study.

We hypothesized that the group that performed the three good things exercise at least twice a week would experience a higher level of life satisfaction, optimism, general trust, and PA than the control group. We further hypothesized that the treatment group would experience a lower level of depressive symptoms and NA compared with the control group.

METHODS

Design and Participants

Nikkei Research Inc. (NRI) conducted the majority of the tasks in the present study in accordance with the research plan designed by the present authors. The Research Institute of Economy, Trade and Industry, to which the first author belonged, signed a

contract with NRI. NRI performed the tasks in the present study as fulfillment of its contractual obligations.

Participants were recruited by NRI. The company sent an email to people who registered on the NRI website to be monitors for surveys conducted by the company. In the email, the purpose of the research was stated as “to examine whether consistently writing simple records, similar to a diary, enhances happiness level,” and recipients were encouraged to access the NRI website for general study instructions. Those who accessed the website were asked if they wanted to participate in the study, and only those who provided informed consent were permitted to answer questions about their demographic characteristics and complete the outcome measures. Questions on demographic characteristics included sex, age, marital status, educational attainment, job status, and region (prefecture in which they resided).

Individuals who were 18 years of age or older were eligible for inclusion in the present study. In order to ensure response accuracy, participants who chose the same number for all 20 items in the Center for Epidemiological Studies Depression Scale (CES-D; Radloff, 1977), one of the outcome measures used in the present study, were excluded from the study because the CES-D contains 4 reverse-scored items, and it is unlikely that those who chose the same number for all 20 items correctly answered the questionnaire. There were no other inclusion or exclusion criteria.

The number of participants was limited to 1,000, primarily for budget reasons. The following predetermined process was used for selecting the 1,000 participants: 150 males and 150 females between the ages of 18 to 29, 120 males and 120 females between the ages of 30 and 39, 110 males and 100 females between the ages of 40 and 49, 80 males and 60 females between the ages of 50 and 59, and 60 males and 50 females aged 60 or above were randomly extracted from the group that correctly answered the questions at baseline and met inclusion criteria. A greater number of males were selected because attrition among males was more prevalent in previous research conducted by NRI. Participants were selected using the random number function in Microsoft Excel. The random number function was further used to randomly allocate these 1,000 participants to two groups [the Three Good Things group (TGT group) and the control group], under the condition that each of the abovementioned categories was equally represented in the two groups. The selection and allocation tasks were conducted by an officer of NRI. Each group had 500 participants.

Interventions

Participants received e-mails every day at 4 am that encouraged them to access the website to complete the exercise. On the website for the TGT group, participants were instructed to write down three good things that happened during the day, why they

happened, and why they were good. Control group participants were instructed to write down three past events that occurred in their life, why they happened, and how they influenced their present life. All content was submitted electronically to NRI. Insubstantial responses, such as “none” and “nothing,” were considered equal to an absent entry for that day. Other than this, the substance of what participants wrote was not evaluated, and participant names and data were kept confidential. This confidentiality was conveyed to participants prior to the study.

Participants were informed that they would receive remuneration upon completion of the follow-up assessment. The remuneration amount was determined by the number of times the exercise was performed. If participants completed the exercise every day for 4 weeks (28 times), they received 5,000 yen (approximately $50); if they completed the exercise at least twice a week and 16–27 times in 4 weeks, they received 2,000 yen; if they performed the exercise at least twice a week and 8–15 times in 4 weeks, they received 1,000 yen. Participants that did not complete the exercise twice or more in a particular week were disqualified and did not receive remuneration or further emails encouraging exercise completion

Outcome Measures

Participants were evaluated before the study (pre-test), immediately following study completion (post-test), and 1 month after study completion (1-month follow-up). The following measures were used to assess study outcomes. In addition to these measures, questions used to calculate the Consumer Confidence Index (CCI), which was constructed by the Cabinet Office of the Japanese government and is considered reflective of consumer confidence, were also asked because the present study was part of another study examining the relationship between consumer confidence and psychological measures. Data on the relationship between CCI and the outcome measures would be reported elsewhere as an economics study.

The Satisfaction with Life Scale (SWLS) is a 5-item scale that assesses general life satisfaction (Diener, Emmons, Larsen, & Griffin, 1985; Japanese version by Uchida, Kitayama, Mesquita, Reyes, & Morling, 2008). SWLS scores range from 5 to 35, with higher scores indicating a higher level of life satisfaction.

The Center for Epidemiological Studies Depression Scale (CES-D) is a 20-item scale that assesses the severity of depressive symptoms experienced during the previous week (Radloff, 1977). The Japanese translation of the CES-D is based on the questionnaire of the Japanese Study of Aging and Retirement (JSTAR), a panel survey conducted by the Research Institute of Economy, Trade, and Industry and Hitotsubashi

University. Four items in the CES-D are reverse-scored and used for assessing the absence of PA. CES-D scores range from 0 to 60, with higher scores indicating a higher level of depression.

The Life Orientation Test-Revised (LOT-R) is a 6-item measure used to assess optimism and pessimism (Scheier, Carver, & Bridges, 1994; Japanese version by Sakamoto & Tanaka, 2001). Although the original version of LOT-R includes filler items, these were not used in the present study. In the present study, the LOT-R consisted of 3 items that measured optimism and 3 items that measured pessimism. The scores of the 3 pessimism items were reversed and added to the scores of the 3 optimism items, which yielded the total LOT-R score. LOT-R scores range from 6 to 30, with higher scores indicating greater optimism.

The General Trust Scale (GTS) is a 6-item scale that assesses one's belief in the trustworthiness of others (Yamagishi & Yamagishi, 1994; Japanese version by Yamagishi, 1998). GTS scores range from 6 to 42. Although the average of the 6 items was used in Yamagishi (1998), the sum of the answers was used in the present study. Higher scores indicate a greater level of trustfulness.

PA and NA were measured using the mood ratings mentioned in Thomas and Diener (1990). The Japanese version is based on Tanaka (2008). The intensity of four positive emotions (happy, joyful, pleased, and enjoyment/fun) and five negative

emotions (depressed/blue, unhappy, frustrated, angry/hostile, and worried/anxious) was evaluated. Each respondent rated the current degree of each of these emotions from 1 (not at all) to 7 (extremely so). The scores for the positive emotions were summed to determine an overall PA score, and the scores for the negative emotions were summed to establish an overall NA score. Overall PA scores range from 4 to 28, with higher scores indicating a greater level of PA. Total NA scores range from 5 to 35, with higher scores indicating a higher degree of NA.

Data Analysis and Statistics

Analyses were conducted on data from participants we categorized as completers and perfect attenders. The completers were participants who performed the assigned exercise twice or more times a week and completed all of the pre-test, post-test, and follow-up assessments. The perfect attenders were participants who performed the exercise every day for 4 weeks and completed all of the pre-test, post-test, and follow-up assessments. We omitted the data from participants who chose the same number for all 20 items on the CES-D for the same reason we did not allow individuals who answered this way during the pre-test to participate in the study.

Because of the high attrition rates in Internet-based studies, we did not perform intention-to-treatment analysis. Separate 2 (Group) × 2 (Time) repeated-measures

analyses of variance (ANOVAs) were performed to compare the efficacy of the intervention. Baseline differences in demographic characteristics were determined using unpaired t-tests and a chi-squared test.

RESULTS

Preliminary Analysis

The flow chart shows the procedure used in the present study (Figure 1). A total of 6,553 people responded to the announcements regarding the study and completed an online assessment of outcome measures and demographic characteristics. We excluded 148 people because they provided inconsistent answers on the CES-D (as mentioned above). Of the remaining 6,405 people, 1,000 participants were selected and randomly assigned to the TGT or the control group based on the design of the present study. During the exercise period of four weeks, there was a period of four hours in which participants were unable to log onto the website to complete the exercise because of an accident. Since NRI could identify the names of those who tried to log onto the website during the four hours, these participants were considered as having practiced the exercise on that day.

Of the 500 participants in each group, 296 participants in the TGT group and 221 participants in the control group completed the post-test assessment. Attrition rates

were 40.8% (=204/500) for the TGT group and 55.8% (=279/500) for the control group, and this difference was significant ($\chi^2 = 22.526$, $df = 1$, $p < .001$). Of those participants who completed the post-test assessment, data from two people in the TGT group and three people in the control group were excluded from analysis because of inconsistent CES-D answers. Twenty-four participants in the TGT group and 10 participants in the control group did not complete the 1-month follow-up assessment. As a result, 270 people in the TGT group and 208 people in the control group completed the 1-month follow-up assessment. Four people in the TGT group and five people in the control group were excluded from analysis because of inconsistent CES-D answers. Thus, 266 people in the TGT group and 203 people in the control group were analyzed as completers. Of these, 99 people in the TGT group and 102 people in the control group were perfect attenders.

On average, completers in the TGT group performed the exercise 24.91 (SD = 4.00) times during the 28-day period, and completers in the control group performed the exercise 25.43 times (SD = 4.05) during this period. Thus, participants in both groups performed the exercises more than six times per week on average.

Demographic characteristics of participants randomized to the TGT group and the control group are outlined in Table 1. All participants lived in Japan. Unpaired t-tests and a chi-squared test showed that there were no significant differences in sex,

age, marital status, educational attainment, job status, and all outcome measures at baseline between completers and dropouts in both the TGT and the control groups.

Analysis of Completers

The mean scores and standard deviations on the outcome measures for the two groups over the three time points are outlined in Table 2.

Baseline to Post-test. Separate 2 Group (TGT, Control) × 2 Time (Pre, Post) repeated-measures ANOVAs showed a significant interaction of group by time for PA (PA: $F_{1,467} = 3.92$, $p = .048$), but not for the other outcome measures (SWLS: $F_{1,467} = 0.14$, $p = .71$; CES-D: $F_{1,467} = 1.92$, $p = .17$; LOT-R: $F_{1,467} = 0.21$, $p = .65$; GTS: $F_{1,467} = 1.61$, $p = .21$; NA: $F_{1,467} = 1.84$, $p = .18$). There was a main effect of group for general trust (GTS: $F_{1,467} = 4.70$, $p = .03$), but not for the other outcome measures (SWLS: $F_{1,467} = 0.17$, $p = .68$; CES-D: $F_{1,467} = 1.34$, $p = .25$; LOT-R: $F_{1,467} = 0.12$, $p = .73$; PA: $F_{1,467} = 0.05$, $p = .82$; NA: $F_{1,467} = 3.84$, $p = .051$). There was a main effect of time for general trust (GTS: $F_{1,467} = 12.32$, $p < .001$), but not for the other outcome measures (SWLS: $F_{1,467} = 0.45$, $p = .51$; CES-D: $F_{1,467} = 0.06$, $p = .81$; LOT-R: $F_{1,467} = 0.07$, $p = .79$; PA: $F_{1,467} = 1.84$, $p = .18$; NA: $F_{1,467} = 2.73$ $p = .10$).

We conducted simple main effects analyses for general trust and PA. Regarding general trust, a simple main effect of group within time indicated that there was no

significant difference between the TGT group and the control group at the pre-test (GTS: $F_{1,467} = 2.73$, $p = .099$), but there was a significant difference at the post-test (GTS: $F_{1,467} = 5.84$, $p = .016$). A simple main effect of time within the TGT group showed a significant increase in general trust from the pre-test to post-test (GTS: $F_{1,467} = 13.18$, $p < .001$), but this was not observed in the control group (GTS: $F_{1,467} = 2.22$, $p = .14$). Regarding PA, there were no significant differences between the TGT group and the control group at the pre-test (PA: $F_{1,467} = 0.18$, $p = .68$) or post-test (PA: $F_{1,467} = 0.72$, $p = .40$). Simple main effects analysis of time showed a significant increase in PA from pre-test to post-test in the TGT group (PA: $F_{1,467} = 6.42$, $p = .012$), but not the control group (PA: $F_{1,467} = 0.17$, $p = .68$).

Baseline to 1-month follow-up. Separate 2 Group (TGT, Control) × 2 Time (Pre, Follow-up) repeated-measures ANOVAs showed that there was no significant interaction of group by time for any of the outcome measures (SWLS: $F_{1,467} = 0.03$, $p = .86$; CES-D: $F_{1,467} = 0.46$, $p = .50$; LOT-R: $F_{1,467} = 0.33$, $p = .56$; GTS: $F_{1,467} = 0.55$, $p = .46$; PA: $F_{1,467} = 0.01$, $p = .94$, NA: $F_{1,467} = 1.39$, $p = .24$). There was a main effect of group for general trust (GTS: $F_{1,467} = 4.11$, $p = .04$), but not for the other outcome measures (SWLS: $F_{1,467} = 0.22$, $p = .64$; CES-D: $F_{1,467} = 0.16$, $p = .69$; LOT-R: $F_{1,467} = 0.15$, $p = .70$; PA: $F_{1,467} = 0.23$, $p = .63$, NA: $F_{1,467} = 0.95$, $p = .33$). There was a main effect of time for general trust (GTS: $F_{1,467} = 36.71$, $p < .001$), but not for the other

outcome measures (SWLS: $F_{1,467} = 3.06$, $p = .08$; CES-D: $F_{1,467} = 0.91$, $p = .34$; LOT-R: $F_{1,467} = 0.22$, $p = .64$; PA: $F_{1,467} = 3.75$, $p = .053$, NA: $F_{1,467} = 1.36$, $p = .25$).

We conducted simple main effects analyses for general trust. A simple main effect of group within time showed that there was no significant difference between the TGT group and the control group at the pre-test (GTS: $F_{1,467} = 2.73$, $p = .099$), but there was a significant difference at the 1-month follow-up (GTS: $F_{1,467} = 4.57$, $p = .033$). A simple main effect of time indicated significant increases in general trust from the pre-test to the 1-month follow-up both within the TGT group (GTS: $F_{1,467} = 26.73$, $p < .001$) and the control group (GTS: $F_{1,467} = 12.45$, $p < .001$).

Analysis of Perfect Attenders

Baseline to Post-test. Separate 2 Group (TGT, Control) × 2 Time (Pre, Post) repeated-measures ANOVAs showed a significant interaction of group by time for PA (PA: $F_{1,197} = 5.56$, $p = .02$), but not for the other outcome measures (SWLS: $F_{1,197} = 0.06$, $p = .80$; CES-D: $F_{1,197} = 0.77$, $p = .38$; LOT-R: $F_{1,197} = 0.00$, $p = .99$; GTS: $F_{1,197} = 2.85$, $p = .09$; NA: $F_{1,197} = 0.43$, $p = .51$). There were no main effects of group for any of the outcome measures (SWLS: $F_{1,197} = 0.12$, $p = .73$; CES-D: $F_{1,197} = 0.05$, $p = .82$; LOT-R: $F_{1,197} = 0.23$, $p = .63$; GTS: $F_{1,197} = 0.23$, $p = .63$; PA: $F_{1,197} = 0.72$, $p = .40$; NA: $F_{1,197} = 0.59$, $p = .44$). There was a main effect of time for general trust (GTS: F

$_{1,197}$ = 9.59, p = .002), but not for the other outcome measures (SWLS: $F_{1,197}$ = 1.26, p = .26; CES-D: $F_{1,197}$ = 1.53, p = .22; LOT-R: $F_{1,197}$ = 0.37, p = .54; PA: $F_{1,197}$ = 0.66, p = .42; NA: $F_{1,197}$ = 1.98, p = .16).

We conducted simple main effects analyses for general trust and PA. Regarding general trust, simple main effects analyses of group within time showed that there were no significant differences between the TGT group and the control group at the pre-test (GTS: $F_{1,197}$ = 0.02, p = .89) or post-test (GTS: $F_{1,197}$ = 1.01, p = .32). A simple main effect of time within the TGT group showed a significant increase in general trust from pre-test to post-test (GTS: $F_{1,197}$ = 11.17, p = .001), but this was not observed in the control group (GTS: $F_{1,197}$ = 1.02, p = .31). Regarding PA, a simple main effect of group within time indicated there were no significant differences between the TGT group and the control group at pre-test (PA: $F_{1,197}$ = 2.48, p = .12) or post-test (PA: $F_{1,197}$ = 0.00, p = .98). A simple main effect of time within the TGT group showed a significant increase in PA from pre-test to post-test (PA: $F_{1,197}$ = 4.90, p = .03), but this was not observed in the control group (PA: $F_{1,197}$ = 1.23, p = .27).

Baseline to 1-month follow-up. Separate 2 Group (TGT, Control) × 2 Time (Pre, Follow-up) repeated-measures ANOVAs indicated that there were no significant interactions of group by time for any outcome measures (SWLS: $F_{1,197}$ = 0.63, p = .43; CES-D: $F_{1,197}$ = 0.11, p = .74; LOT-R: $F_{1,197}$ = 0.52, p = .47; GTS: $F_{1,197}$ = 2.70, p

= .10; PA: $F_{1,197} = 1.62$, $p = .21$, NA: $F_{1,197} = 0.54$, $p = .46$). There were no main effects of group for any outcome measures (SWLS: $F_{1,197} = 0.44$, $p = .51$; CES-D: $F_{1,197} = 0.07$, $p = .79$; LOT-R: $F_{1,197} = 0.05$, $p = .83$; GTS: $F_{1,197} = 0.19$, $p = .67$; PA: $F_{1,197} = 1.63$, $p = .20$, NA: $F_{1,197} = 0.06$, $p = .81$). There was a main effect of time for general trust (GTS: $F_{1,197} = 24.90$, $p < .001$), but not for the other outcome measures (SWLS: $F_{1,197} = 0.57$, $p = .45$; CES-D: $F_{1,197} = 0.32$, $p = .57$; LOT-R: $F_{1,197} = 0.04$, $p = .84$; PA: $F_{1,197} = 0.97$, $p = .33$, NA: $F_{1,197} = 0.06$, $p = .81$).

We conducted simple main effects analyses for general trust. A simple main effect of group within time showed that there were no significant differences between the TGT group and the control group at the pre-test (GTS: $F_{1,197} = 0.02$, $p = .89$) or the 1-month follow-up (GTS: $F_{1,197} = 0.89$, $p = .35$). A simple main effect of time showed significant increases in general trust from pre-test to the 1-month follow-up point for both the TGT group (GTS: $F_{1,197} = 21.47$, $p < .001$) and the control group (GTS: $F_{1,197} = 5.74$, $p = .018$).

Discussion

The present study demonstrated that participants who performed the three good things exercise at least twice a week for 4 weeks showed a significant increase in PA relative to controls; however, this increase was not observable 1 month following study

completion. In addition, participants in the TGT group exhibited a significant increase in general trust at both the post-test and the 1-month follow-up; however, a significant increase in this variable at the 1-month follow-up was also observed in control participants. There were no significant changes in depressive symptoms, life satisfaction, optimism, or NA in either group. In addition, the analyses of perfect attenders' (those who performed the exercise every day for 4 weeks) data yielded the same pattern of results as observed in the analyses of completers' (those who performed the exercise twice per week or more) data.

Although these results suggest that the three good things exercise is not as effective as previously shown, it is necessary to consider the differences between the present study and previous studies, particularly Seligman et al. (2005). First, in the present study, participants were remunerated when they fulfilled the exercise requirement (twice a week for 4 weeks) and completed the pre-test, post-test, and follow-up assessment questionnaires. It is possible that the goal of the participants was to receive remuneration rather than achieve happiness; thus, they might have lacked the motivation necessary to gain substantial benefit from the exercise. In the study of Seligman et al. (2005), participants voluntarily accessed the website and completed the study without a guaranteed monetary reward, suggesting that participants were motivated to be happy (Mongrain and Anselmo-Mattews, 2012). Second, participants

were not required to perform the exercise just before going to bed in the present study. Although this has not been directly explored in previous studies, reflecting on positive memories of the day before going to bed may improve sleep and mental health. Previous studies show that consolidation of memories including positive emotional ones occur during sleep (Chambers and Payne, 2013). There may be a similar mechanism in the TGT exercise performed before going to bed. Third, all content in the present study was electronically submitted to NRI. Although confidentiality was assured, participants' entries were visible to the administrators and researchers of the present study, and participants' awareness of this may have influenced the effect of the exercise. If participants believed other people might read their entries, they may have been less likely to record meaningful events, which may have decreased the effectiveness of the exercise.

The observed increases in general trust in both the TGT group and the control group were unexpected. Exploration of this finding is important because trust is an essential component of social capital (Putnam, 2000), and social capital is an area of interest for many social scientists. For example, some economists argue that a high level of trust leads to economic growth (Dearmon & Grier, 2009). The present study did not show that the TGT exercise enhanced general trust level because writing three memories led to a weaker but similar result. Thus, the type of intervention may have

been unimportant; rather, the act of consistently recording personal memories, regardless of the content, could have increased trust level. Further study is necessary to determine whether the TGT exercise effectively increases general trust level.

Although the effect was transitory, PA increased at post-test. This fact suggests that if the TGT exercise is performed regularly, this elevated level of positive emotion may be maintained. Since the completers in the TGT group performed the exercise more than six times a week, which was far beyond the requirement of the present study (twice a week), we do not have a clear answer on the minimum number of times per week the TGT exercise should be performed to effectively increase and maintain positive emotion. However, this question is worth pursuing from the perspective of increasing happiness with minimal effort.

The present study had several major limitations. First, this study was not an exact replication of Seligman et al. (2005). Future studies employing the exact design of Seligman et al. (2005) are consequently necessary. Secondly, further assessments were not conducted after the 1-month follow-up; thus, the long-term results of the exercise were not examined in the present study. Finally, the participants in the present study were recruited from people registered on the NRI website to be monitors for surveys conducted by the company; thus, they may not have been representative of typical

Japanese people. For example, more than half of the participants in this study had attended university, which is higher than the national average in Japan.

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Table 1. Demographic Characterics for Individuals Randomized to the TGT or the Control Group

Measure	TGT			Control		
	Baseline (n = 500)	Completers (n = 266)	Perfect Attenders (n = 97)	Baseline (n = 500)	Completers (n = 203)	Perfect Attenders (n = 102)
Females, n (%)	240 (48.0%)	138 (51.9%)	55 (56.7%)	240 (48.0%)	98 (48.3%)	53 (52.0%)
Age (M years ± SD)	39.73 (13.76)	39.24 (13.11)	41.26 (12.71)	39.76 (13.72)	39.71 (13.14)	39.68 (12.48)
Married, n (%)	283 (56.6%)	153 (57.5%)	62 (63.9%)	299 (59.8%)	119 (58.6%)	59 (57.8%)
Education, n (%)						
College or Gradute School	277 (55.4%)	152 (57.1%)	52 (53.6%)	263 (52.6%)	113 (55.7%)	54 (52.9%)
2-year College	93 (18.6%)	52 (19.6%)	19 (19.6%)	101 (20.2%)	41 (20.2%)	24 (23.5%)
High School	118 (23.6%)	57 (21.4%)	25 (25.8%)	120 (24.0%)	39 (19.2%)	18 (17.7%)
Junior High School or Others	12 (2.4%)	5 (1.9%)	1 (1.0%)	16 (3.2%)	10 (4.9%)	6 (5.9%)
Job, n (%)						
working	313 (62.6%)	166 (62.4%)	55 (56.7%)	328 (65.6%)	137 (67.5%)	63 (61.8%)
not working	187 (37.4%)	100 (37.6%)	42 (43.3%)	172 (34.4%)	66 (32.5%)	39 (38.2%)

Note. TGT = three good things.

Table 2. Mean Scores (Standard Deviations) on Outcome Measures for the Two Groups

Measure	Group	Completers (TGT:n = 266; Control:n = 203)			Perfect Attenders (TGT:n = 97; Control:n = 102)		
		Pre	Post	1-month Follow-up	Pre	Post	1-month Follow-up
		Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
SWLS							
	TGT	18.88 (6.21)	19.05 (6.75)	19.22 (6.68)	19.07 (6.34)	19.41 (6.43)	19.06 (6.37)
	CONTROL	19.18 (6.45)	19.23 (6.57)	19.46 (6.69)	19.43 (6.23)	19.65 (6.60)	19.84 (6.53)
CES-D							
	TGT	15.42 (9.28)	14.90 (10.25)	15.33 (10.35)	14.87 (9.29)	15.05 (9.57)	15.36 (9.90)
	CONTROL	16.02 (10.92)	16.39 (10.93)	15.44 (10.44)	14.72 (10.08)	15.81 (11.07)	14.84 (9.83)
LOT-R							
	TGT	18.47 (4.13)	18.57 (4.31)	18.62 (4.36)	18.58 (4.11)	18.47 (4.27)	18.68 (4.10)
	CONTROL	18.41 (4.07)	18.38 (4.01)	18.39 (4.24)	18.83 (3.69)	18.73 (3.58)	18.65 (3.97)
GTS							
	TGT	26.42 (6.77)	27.48 (6.94)	27.98 (6.89)	25.70 (6.11)	27.30 (6.96)	27.74 (6.79)
	CONTROL	25.35 (7.14)	25.85 (7.60)	26.58 (7.31)	25.83 (6.70)	26.30 (7.01)	26.86 (6.38)
PA							
	TGT	18.48 (5.24)	19.00 (5.21)	18.80 (5.35)	18.18 (5.49)	18.96 (4.76)	18.71 (4.96)
	CONTROL	18.68 (5.39)	18.59 (5.37)	19.03 (5.20)	19.32 (4.79)	18.94 (5.03)	19.25 (4.61)
NA							
	TGT	17.66 (6.92)	16.96 (6.85)	17.67 (7.15)	17.64 (6.80)	16.94 (6.40)	17.81 (6.36)
	CONTROL	18.54 (6.95)	18.47 (7.42)	17.97 (7.11)	18.11 (6.60)	17.85 (7.34)	17.76 (6.97)

Note. TGT = three good things; SWLS = Satisfaction With Life Scale; CES-D = The Center for Epidemiologic Studies Depression Scale; LOT-R = Life Orientation Test-Revised; GTS = General Trust Scale; PA = Positive Affect; NA = Negative Affect

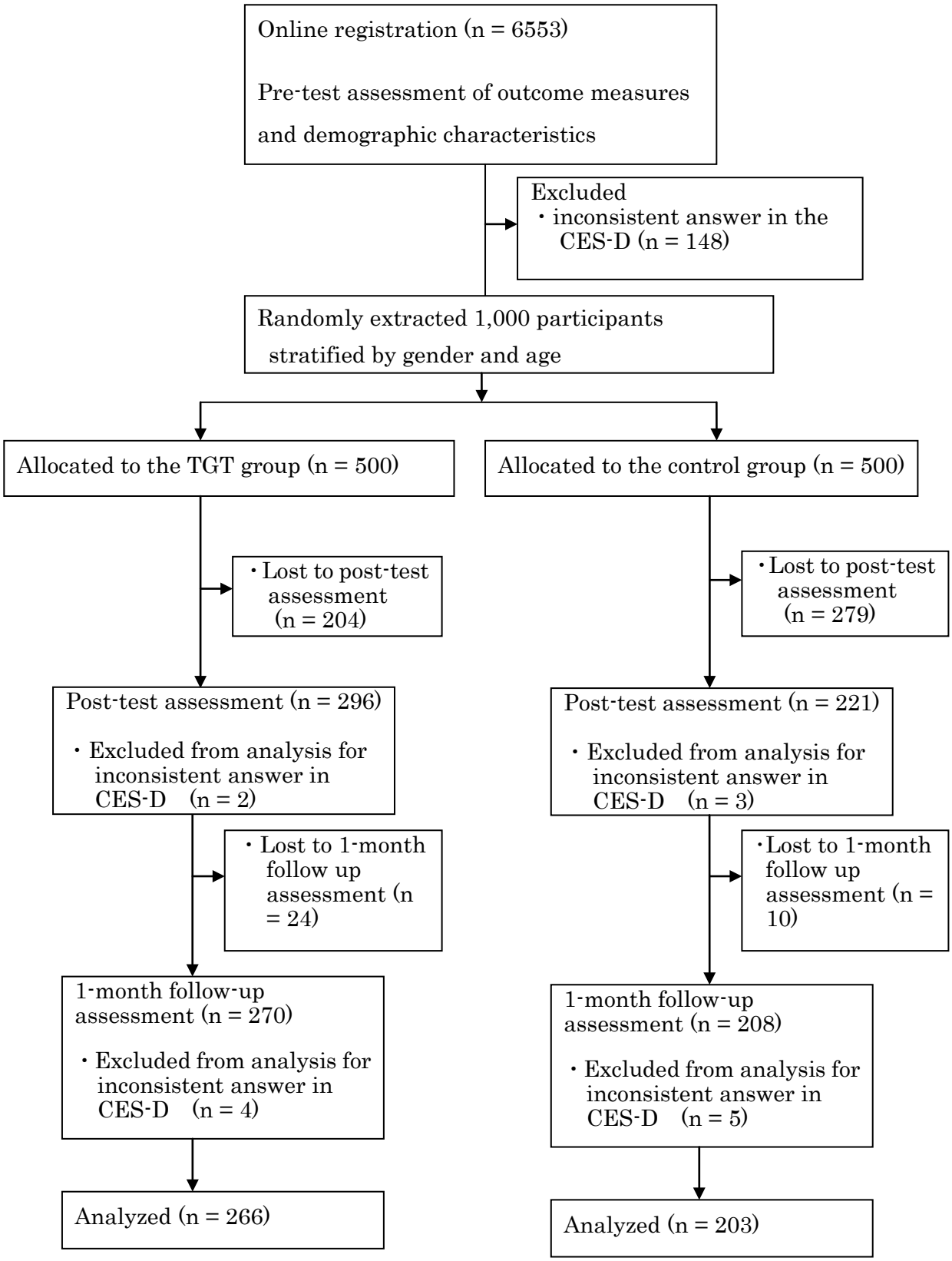

Figure 1. Flow Chart of Procedure