

**The effect of contemplation and meditation on ‘great compassion’ on
the psychological well-being of adolescents**

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This study aimed to evaluate the effect of contemplation and meditation (CM) training, with a focus on developing great compassion, on the psychological well-being (PWB) of adolescents. Participants ($N = 51$, *mean age* = 15.8) were randomly allocated to either CM training ($n = 26$) or a comparison group ($n = 25$). Both groups completed measures of PWB before and after the intervention. Adolescents who received CM training showed statistically significant increases in environmental mastery and personal growth, as well as decreased negative affect compared to the comparison group. Girls in the experimental group also showed a significant decrease in negative affect compared to boys in the experimental group. Both the experimental and comparison groups demonstrated increased life satisfaction, environmental mastery, self-acceptance, autonomy and purpose in life. There were no changes in positive affect and positive relations with others for both groups.

Keywords: Psychological well-being; meditation; compassion; adolescents; life satisfaction, affect

Introduction

Until recently adolescence was mostly viewed as a potentially difficult life transition associated with risk factors for developing distress and psychopathology. However, there has been increased attention to also understanding facets of positive psychological functioning among adolescents, including life satisfaction (Proctor, Linley, & Maltby, 2008), psychological well-being and optimal functioning (Keyes, 2006, 2009) as well as thriving (Benson & Scales, 2009). Although several interventions to enhance well-being among adults have been proposed and evaluated (e.g. Lyubomirsky, 2008; Lyubomirsky, Dickerhoof, Boehm, & Sheldon, 2011; Schueller, 2010; Seligman, Steen, Park, & Peterson, 2005), research on specifically promoting well-being among adolescents is still limited. Moreover, a large number of studies have focused on positive youth development programs, aimed at enhancing specific competencies and preventing psychological distress (see McWhinnie, Abela, Hilmy, & Ferrer, 2008, for a review) and not at improving psychological well-being specifically.

Existing research on the enhancement of well-being among adolescents included investigating the effects of well-being therapy (Ruini et al., 2009; Tomba et al., 2010), mindfulness training (Huppert & Johnson, 2010; Schonert-Reichl & Lawlor, 2010), character strengths-based interventions (Proctor et al., 2011) and gratitude interventions (Froh, Sefick, & Emmons, 2008), yielding mixed results. For instance, Ruini et al. (2009) reported a decrease in psychological distress and an increase in personal growth as a facet of psychological well-being following a well-being therapy intervention. Similarly mindfulness meditation has been linked with increased optimism among early adolescents but there were no significant changes in negative and positive affect (Schonert-Reichl & Lawlor, 2010). Moreover, Huppert and Johnson (2010) did not find a significant improvement in overall well-being overall following a mindfulness

intervention implemented among adolescent boys. Furthermore, it appears that life satisfaction is likely to increase following interventions to enhance well-being among adolescents, while a change in positive affect is less likely (Froh et al., 2008; Proctor et al., 2011). More research is needed to confirm which facets of well-being may be more malleable than others and which interventions are effective in increasing well-being.

Most studies that have investigated the effect of interventions to increase well-being among adolescents have applied either hedonic (Froh et al., 2008; Proctor et al., 2011) or eudaimonic conceptualizations of well-being (Ruini et al., 2009; Tomba et al., 2010). From the hedonic perspective well-being is conceptualized as having high life satisfaction, and relatively more positive than negative affect (Linley, Maltby, Wood, Osborne, & Hurling, 2009). On the other hand, the eudaimonic perspective is concerned with optimal functioning or complete mental health (Keyes & Annas, 2009; Ryan & Deci, 2001; Ryff 2014). It is now generally accepted that both hedonic and eudaimonic conceptualizations of well-being should be considered in understanding positive psychological functioning (Keyes & Annas, 2009; McMahan & Estes, 2010). Therefore, more research is needed to establish the effect of interventions on adolescents' well-being in a broader sense.

Meditation has received increased attention as an intervention to enhance positive functioning. Most research thus far has focused on mindfulness meditation while other forms of meditation such as loving-kindness meditation and compassion meditation have been less explored. Several studies have demonstrated that mindfulness meditation could contribute to improving health and well-being among adults through reducing physical illness, psychopathology and stress (Kabat-Zinn, 2009), as well as increasing forgiveness (Oman, Shapiro, Thoresen, Plante, & Fliners, 2008), subjective well-being and self-compassion (Orzech, Shapiro, Brown, & McKay, 2009). There is

also increased evidence that mindfulness meditation may enhance psychological health and well-being among children and adolescents (Burke, 2010; Greenberg & Harris, 2012). For example, mindfulness meditation seems to contribute to decreased symptoms of psychopathology such as anxiety and depression in youth (Biegel, Shapiro, Brown, & Schubert, 2009; Haidicky, 2010). Further, mindfulness based cognitive therapy led to increased goal achievement, attention and happiness among adolescents who experienced difficulties with attention and impulsivity (Bögels, Hoogstad, van Dun, de Schutter, & Restifo, 2008). Yet, despite progress being made on understanding mindfulness among youth, less is known about the effect of mindfulness meditation on psychological well-being specifically, especially among non-clinical adolescent samples. In one of the few studies that has examined the effect of mindfulness meditation on adolescent psychological well-being, Huppert and Johnson (2010) did not find an increase in psychological well-being among a group of adolescent males compared to a control group, although more practice in mindfulness outside of the formal sessions was associated with increased psychological well-being.

Frederickson, Cohn, Coffey, Pek and Finkel (2008) examined the effect of another form of meditation, referred to as loving-kindness meditation (LKM) on adult psychological well-being. They found a significant increase in positive emotions, as well as in several dimensions of psychological well-being, namely purpose in life, self-acceptance, positive relations with others and environmental mastery. Further, the intervention seemed to have contributed to improved mindfulness, social support received, pathways thinking, savouring future events, and reduced illness symptoms. Additionally, Pace et al. (2008) reported that participating in a six week compassion meditation program led to reducing detrimental immune and behavioral effects caused by stress. These findings support the possibility that meditation practices on benevolent

outlooks such a loving kindness meditation and compassion meditation may contribute to positive psychological functioning in adults, but research among adolescents seems limited to mindfulness based approaches and to populations experiencing psychological difficulties. Many studies among this age group also suffer from methodological difficulties and studies to confirm the efficacy of meditation is lacking (Burke, 2010).

Another aspect to consider is the fact that most studies related to the psychological effects of meditation only pertained to specific aspects of Buddhist meditation practice, and less is known about the effect of other Buddhist practices on well-being (Hoffman, Grossman, & Hinton, 2011). Likewise, Shapiro, Walsh and Britton (2003) noted that only a few researchers have considered the original purpose of meditation which includes developing compassion, wisdom and understanding. Compassion, in particular, viewed as a moral emotion (Haidt, 2003), may play an important role in promoting positive psychological functioning (Jazaerie et al., 2013). Moreover, most studies that evaluated meditation interventions focused on single topic meditation, whereas within Buddhist tradition, multiple topics can be included in meditation practice to ultimately enhance well-being (Gyatso, 2003). Therefore, meditation practices that include multiple topics, and are aimed at developing compassion, may enhance well-being by focusing on more than just the momentary awareness of mindfulness (Hoffman et al., 2011).

Considering the general lack of research on interventions to increase psychological well-being among adolescents, the limited knowledge on the implementation of multi-topic meditation practices, and the dearth of research on the effect of contemplation on virtue, this study examined the effect of a form of Buddhist meditation termed analytical meditation and placement meditation, also referred to as

contemplation and meditation (Gyatso, 2003), aimed at developing compassion, on the psychological well-being of adolescents.

Contemplation and meditation

According to Gyatso (2003), meditation can be defined as concentration on virtue to develop inner peace and happiness. In this study the term contemplation meditation (CM) is used as a working definition for two components of a style of Mahayana Buddhist meditation from the New Kadampa Tradition (NKT), referred to as analytical meditation and placement meditation, practiced in the same meditation session (Gyatso, 1995, 2003). Before engaging in the analytical and placement meditation phases, a few minutes of a breathing meditation occur. This involves concentration on one's breath as it naturally enters and exits the nostrils, to calm the mind and eliminate distractions (Gyatso, 1995, 2003). Thereafter, analytical meditation (contemplation) and placement meditation (meditation) are combined in the meditation session.

Analytical meditation, the first phase of this meditation method, involves applying contemplation, analysis, logic and reasoning to a spiritual instruction to arrive at a desired conclusion, virtuous feeling, or virtuous intention (Gyatso, 1995, 2003). Once the virtuous object of thought is found in the analytical meditation phase, one can then move onto the placement meditation phase, where one focuses on the object with single-pointed concentration, which is the actual meditation. It is possible to alternate between these two phases throughout the meditation session and with time the placement meditation phases will become longer as one's concentration builds with training (Gyatso, 1995, 2003). The aim of contemplation and meditation is to deeply acquaint one's mind with a virtuous object to bring about inner peace and happiness (Gyatso, 2003). This is accomplished by meditating on specific topics.

According to the NKT Buddhist theory (Gyatso, 1995, 2003), an individual can go through a cycle of 21 suggested meditation topics, meditating on a different topic every session, for example once daily within the rotation, and once completed, return to the beginning to start the cycle again. From this perspective, even engaging in a few minutes of meditation a day can have beneficial effects on well-being. Moreover, the purpose of this particular meditation practice is to gain deep familiarity with the meditation topics, which are aimed at developing optimal compassion and optimal wisdom, to enhance well-being for oneself and others, and eventually to attain full enlightenment (optimal well-being) for the benefit of all beings.

Great compassion

There are numerous virtuous topics or objects of meditation suggested in contemplation meditation (Gyatso, 1995, 2003), which are intended to create a peaceful state of mind and lead to optimal well-being. In this study, the contemplation meditation training focused primarily on developing great compassion, which included eight sessions of meditation topics that built upon one another towards achieving this goal. From the New Kadampa Tradition (NKT) Mahayana Buddhist perspective, compassion has been described as “a virtuous mind that wishes for others to be free from suffering” (Gyatso, 2002, p.311). Developing high levels of compassion is considered essential to attain optimal well-being or full-enlightenment. Great compassion, also referred to as universal compassion, will arise for a mind that cherishes every living being and who wishes to reduce their suffering. To attain full enlightenment which from a positive psychology perspective can be considered as optimal psychological well-being, one needs to develop compassion, so that it embraces all living beings without exception (Gyatso, 1995, 2000, 2003). This universal compassion must be cultivated intentionally in meditation over a long period of time (Gyatso, 2000). Because compassion has been

conceptualized as a moral emotion (Haidt, 2003) that can be considered as part of positive psychological functioning, as well as a psychological strength (Linley, Willars, & Biswas-Diener, 2010) and a positive emotion (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008) that may enhance well-being, we expected that a meditation program focused on developing great compassion could enhance psychological well-being.

There has been increased awareness of the importance of facilitating youth well-being in educational circles (Green & Norrish, 2013). A review by Weare and Nind (2011) further confirmed the importance of supporting, continuing and expanding mental health promotion in schools. The school setting can be seen as an environment conducive to developing optimal functioning and well-being (Ruini et al., 2009; Visani, Albieri & Ruini, 2014). Therefore, this study was implemented in schools. This is also in accordance with recent calls to include specific sessions related to understanding and promoting flourishing as part of the school curriculum (Morris, 2013). Generally speaking, school-based interventions could focus on enhancing specific constructs related to well-being, or integrate several constructs into a components into a comprehensive approach (Green & Norrish, 2013). In our study we focused more specifically on one aspect, namely developing compassion through contemplation meditation.

Our primary hypothesis was that CM training would result in increased psychological well-being, including both hedonic and eudaimonic facets, among adolescents. Further, we considered hypotheses regarding these specific facets of well-being. First, we expected that CM training would increase hedonic facets of well-being as evident in increased life satisfaction and positive affect, as well as decreased negative affect, mainly through eliciting compassion, viewed as a positive emotion (Frederickson et al., 2008). Based on Fredrickson's (1998) broaden-and-build theory, it is possible that

developing compassion may lead to an increase in positive affect. Moreover, through broadening the participants' thinking and building of personal resources, CM training may result in positive changes in life satisfaction, considered a cognitive judgment of life as a whole (Pavot & Diener, 1993). Similarly, meditating on compassion may lead to a decrease in negative affect because positive emotions may counter negative affective experiences (Garland, Fredrickson, Kring, Johnson, Meyer, & Penn, 2010).

Second, we expected that CM training would lead to positive changes in well-being as conceptualized from an eudaimonic perspective, since contemplation and meditation on compassion for all beings is associated with facilitating optimal well-being through developing virtue (Gyatso, 1995; 2003). According to the eudaimonic view well-being entails more than feeling happy, and refers to functioning well (Keyes & Annas, 2009) or living life according to one's true self and actualizing one's potential. In particular, we expected that CM training may lead to positive changes in the six facets of eudaimonic well-being or positive psychological functioning proposed by Ryff (Ryff, 2014; Ryff & Singer, 1996; 2008): *Self-acceptance* entails holding a positive evaluation of oneself while *positive relations with others* is the capability to have warm, trusting interpersonal relationships and having the capacity to maintain them. *Autonomy* refers to self-determination and independence as well as the ability to resist social pressures, *Environmental mastery* entails how well individuals manage their life situation. This includes having a sense of mastery and competence in managing the environment, controlling external activities and using opportunities. The capacity to choose or create contexts suitable for one's personal needs and values also encompasses environmental mastery. *Purpose in life* refers to an individual's belief that life has meaning, purpose and direction while *personal growth* is primarily concerned with the extent to which individuals used their talents and potential and were open to

new experiences. To this end, we developed and implemented a contemplation meditation program derived from Mahayana Buddhist methods (Gyatso, 1995, 2000, 2001, 2003) with a group of adolescents in a school setting and determined its effect on their psychological well-being.

Method

Research design

This study implemented a basic experimental design and included a randomized controlled trial. An experimental group received contemplation meditation training and a comparison group received reading material on positive psychology once a week. Both groups completed measures to establish psychological well-being before and after the interventions.

Participants

The sample consisted of 51 adolescents between the ages of 15 – 17 years (*mean age* = 15.8) from four high schools in England. There were 26 boys and 25 girls. Parents and youth both provided signed consent. Participants were recruited on a volunteer basis at each school and randomly allocated to either the experimental group or the comparison group. There were 26 participants in the experimental group and 25 in the comparison group.

School A, which was the largest out of the four schools, had 25 participants, School B had 8 participants, School C had 6 participants and School D had 12 participants. Moreover, meditation was previously introduced at School A. The majority of the participants were Caucasian with English as their first language. School A and School C are public schools, while School B and School D are private schools. Schools A, B and D could be considered from middle to upper socioeconomic income

brackets, while School C is from a relatively lower income bracket region. There were no statistically significant differences found between schools on all measures before and after the intervention.

Measures

The Satisfaction with Life Scale

To assess the participants' cognitive judgments regarding his or her life as a whole, the Satisfaction with Life Scale (SWLS) (Diener, Emmons, Larsen, & Griffin, 1985) was implemented. Life satisfaction is generally seen as a facet of hedonic well-being. The scale consists of 5 items, rated on a scale of 1 to 7, with higher scores indicating higher life satisfaction. A sample item of the scale is: "The conditions of my life are excellent."

The SWLS was originally developed for adults, but has also received support for implementing with adolescents (Proctor, Linley & Maltby, 2009). Reliability coefficients of .78 (Neto, 1993) and .79 (Guse, 2012) have been reported in adolescent samples. In this study the internal consistency of the scale was satisfactory ($\alpha = .86$).

The Positive and Negative Affect Schedule for Children (PANAS-C)

This 30-item scale assesses the presence of positive and negative affect in children and adolescents. Levels of positive and negative affect can be viewed as facets of hedonic well-being. Each item on the scale is an adjective related to an affective state (feelings and emotions) representing either positive affect or negative affect (Laurent et al., 1999). Participants are asked to rate how often they experience each state on a 1 - 5 Likert scale, ranging from 1 (not much) to 5 (a lot). Positive affect items in the questionnaire include: delighted, alert, interested and happy. Negative affect items include: frightened, sad, upset, and ashamed, Laurent et al., (1999) reported reliability

coefficients for the PANAS-C ranging from .90 (PA) to .94 (NA). Acceptable alpha coefficients of .89 were found for both the positive and negative affect subscales in this study.

Psychological Well-being Scale

To measure eudaimonic facets of well-being Ryff's (1989; Ryff & Singer, 1996) Psychological Well-Being Scale was administered. The scale measures six facets of positive functioning referred to as autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. It consists of 84 items graded on a six-point Likert scale. Sample items include the following: "People rarely talk me into doing things I don't want to do" (autonomy); "I am good at juggling my time so that I can fit everything in that needs to get done" (environmental mastery); "In general, I feel that I continue to learn more about myself as time goes by" (personal growth); "I feel like I get a lot out of my friendships" (positive relations with others); "I have a sense of direction and purpose in life" (purpose in life) and "When I look at the story of my life, I am pleased with how things have turned out" (self-acceptance).

Ryff (1989) reported reliability coefficients ranging from .86 to .93 for the six subscales in an adult sample, while Akin (2008) reported coefficients ranging from .87 to .96 among Turkish university students. Shorter versions of the scales have been implemented in adolescent samples, yielding varied alpha coefficients (Garcia & Siddiqui, 2009). Cronbach alpha coefficients for the six subscales in this study were satisfactory, ranging from .86 for autonomy, .88 for environmental mastery, .79 for personal growth, .88 for positive relations with others, .86 for purpose in life and .93 for self-acceptance.

Contemplation and meditation program

The program was specifically developed for this study by an advanced NKT Mahayana Buddhist meditation teacher, Georgina Pugh (personal communication, September 19, 2008). The content was based on the work of Kelsang Gyatso (1995, 2000, 2001, 2002, 2003) and consisted of eight sessions of contemplation and meditation topics which built upon one another towards developing greater compassion. The weekly topics included the following: breathing meditation; happiness from a different source; inner peace and delusions; equanimity; the kindness of others; living meaningfully and transforming adversity. Participants were further encouraged to practice meditation on a regular basis, even just for a few minutes every day.

Procedure

The British Psychological Society (BPS) provided verbal approval for the study to be conducted. Thereafter, the headmasters of 15 schools in England were contacted to request participation in the study. However, in the end only four schools were able to participate due to either lack of interest or time constraints. After obtaining permission from the headmasters students were notified about the study through staff at their schools. Those who were interested in participating notified the assigned staff member at their school, who then notified the first author. Participants were randomly assigned to either the experimental group or the comparison group after informed consent was obtained from parents.

In Schools A and B the intervention was implemented during class periods, while at Schools C and D it occurred during lunch break. The experimental group was assigned to eight weekly contemplation meditation sessions, lasting 45 minutes, taught as a group in a classroom. The meditation classes were provided by a trained meditation teacher, unaffiliated to the school, who had extensive experience and

training in the Mahayana Buddhist New Kadampa Tradition (NKT). The average number of classes attended for the experimental group was 4.90, although there were eight weekly classes offered to participants. There were no statistically significant differences found between number of meditation classes attended and pre and post well-being scores.

The comparison group received eight weekly readings, handed out by the assigned staff member. The one-page readings were selected from chapter one of the book *Authentic Happiness* (Seligman, 2002), which provided a discussion on the benefits of developing positive outlooks as well as character strengths and associated behaviors to improve well-being. Topics included the link between positivity and longevity, and how helping others can improve well-being. The weekly readings were expected to be read by the participants in their own time without controlling whether they did comply or not. There was no group study component in the comparison condition nor were there any specific exercises to be completed. At the end of the initial eight sessions, the comparison group was offered compensatory eight weeks of contemplation meditation classes.

Data analysis strategy

A mixed design ANOVA was used with time (pre- and post-) as the within-subjects effect and group (experimental and comparison) as the between-subjects effect.

Results

There was a significant increase in four facets of psychological well-being in the adolescents who received the CM training in comparison to the comparison group, while other facets of well-being increased for both groups. The means and standard deviations for the indices of psychological well-being for both groups, before and after

the intervention, are presented in Table 1. The main findings of the study are presented as a note to the table, for ease of reading.

<Table 1 here>

The within-subjects analysis for scores on the environmental mastery subscale showed a main effect for time, indicating a statistically significant difference in the before and after scores of the whole sample, $F(1, 42) = 15.71, p < 0.001$. The effect size was large ($\eta = .3$) suggesting practical significance. There was also a significant interaction between time and group, $F(1, 42) = 4.61, p = .04$, with a medium effect size ($\eta = .08$), indicating that there were bigger differences in before and after scores of the experimental group compared to the comparison group, as reflected in Figure 1. Thus, the experimental group's environmental mastery increased more sharply than the comparison group. However, the between-groups analysis showed no statistically significant differences in the overall scores in environmental mastery between the two groups ($F(1,42) = 1.48, p = .23$) before and after the intervention.

<Figure 1 here>

Further, there was a statistically significant interaction for time and group on the personal growth subscale, $F(1,45) = 6.19, p = .02, \eta = .1$ (large effect). The experimental group showed a significant increase in personal growth in comparison to the comparison group, as reflected in Figure 2. There was no main effect for time for the whole sample, $F(1,45) = 0.85, p = .36$ and the between-groups analysis showed no statistically significant differences in the overall scores in personal growth between the two groups ($F(1,45) = 0.01, p = .92$) before or after the intervention.

<Figure 2 here>

Finally, there was a statistically significant interaction for time and group for negative affect, $F(1, 39) = 3.85, p = .05$, yielding a medium effect size ($\eta = .09$). The experimental group showed a significant decrease in negative affect whereas the comparison group showed no change. Again there was no main effect for time for the whole sample. The between-groups analysis showed no statistically significant difference in the overall scores in negative affect of the two groups before and after the intervention ($F(1, 39) = 3.85, p = .94$).

< Figure 3 here >

A further between-subjects analysis considered the effect of gender. There was significant interaction between time, group and gender, ($F(1,37) = 5.11, p = .03, \eta = .11$) for negative affect. Girls in the experimental group showed a significant decrease in negative affect after the meditation training, in comparison to boys in the experimental group (Figure 3). There were no significant Time x Group x Gender effects for the other variables.

<Figure 4 here >

There were significant main effects for several other variables for the whole sample. Specifically, life satisfaction ($F(1,45) = 7.22, p = .01, \eta = .14$), self-acceptance ($F(1, 39) = 7.31, p = .01, \eta = .16$), purpose in life ($F(1, 42) = 9.07, p = .004, \eta = .18$) and autonomy ($F(1, 43) = 13.55, p = .001, \eta = .30$) increased for both the experimental and comparison groups. There were no significant interactions between time and group for these variables. Finally, there were no main effects for positive affect ($F(1, 42) = 3.66, p = .06$), and positive relations with others ($F(1,42) = 0.32, p = .58$).

Discussion

The aim of this study was to examine the effect of contemplation meditation on the psychological well-being of a group of adolescents. The results indicated that environmental mastery and personal growth were enhanced to a greater extent for participants who received the contemplation meditation training (CM), compared to a comparison group. Negative affect decreased for the experimental group, but remained unchanged for the comparison group. Additionally, there were gender differences as girls in the experimental group showed a significant decrease in negative affect after the contemplation meditation training in comparison to boys. Several facets of well-being improved for the whole sample, but there were no changes in positive affect and positive relations with others.

The increase in environmental mastery is consistent with Fredrickson et al. (2008)'s finding following a loving-kindness meditation intervention with adults. Similarly, Jacobs et al. (2010) reported a significant increase in perceived control, as measured with the environmental mastery subscale (Ryff, 1989) among adults who participated in a three-month meditation retreat. In contrast, Ruini et al. (2009) did not find an increase in environmental mastery in adolescents after implementing well-being therapy. Thus, the findings of the present study seem to support existing research that suggests the unique benefits of meditating on benevolent outlooks, such as love, compassion and equanimity to improve environmental mastery, and ultimately, well-being.

The increment in environmental mastery of the experimental group after the CM intervention could further be understood in context of the nature of CM training. Learning the wisdom that happiness can be achieved by developing virtuous states of mind (Gyatso, 1995, 2000, 2001, 2002, 2003, 2010) may have increased participants'

sense of control and confidence over developing their own happiness and well-being, instead of being dependent on external conditions. According to Buddhist tradition, contemplation and meditation on compassion builds compassion and subsequently well-being (Gyatso, 2000, 2003). Although compassion was not measured directly in this study, focusing on compassion may have provided the participants with more energy and ease in mastering their daily activities as they focused more on the well-being of others than themselves. This raises the possibility that CM training specifically may be conducive to the development of environmental mastery as a specific facet of PWB.

The second finding of this study, an increase in personal growth in the CM group in comparison to the comparison group, is consistent with Ruini et al.'s (2009) findings after implementation of a well-being therapy intervention. It provides some support that there may be value in interventions to promote eudaimonic facets of psychological well-being among youth. In contrast, Fredrickson et al. (2008) did not find a significant increase in personal growth for adults who participated in loving-kindness meditation (LKM). However, LKM does not focus on contemplation and meditation on virtue but aims to develop unconditional kindness to others (Hoffman et al., 2011). It is possible that specific forms of meditation may enhance specific facets of well-being, but this needs to be investigated by further research. The increase in personal growth for participants of the contemplation meditation training could further possibly be attributed to the fact that the NKT Buddhist meditation theory emphasizes the necessity for engaging in personal development activities, such as contemplation and meditation on virtue (e.g. compassion and wisdom), to enhance happiness and inner peace (Gyatso, 1995, 2003), resulting in an increase in personal growth as a facet of psychological well-being. Furthermore, being in a classroom among peers, jointly focusing on compassion for all beings, could also have played some part in increasing

personal growth. According to Buddhist theory (Gyatso, 1995) spiritual friends (i.e. sangha) play an integral role in the process of personal development towards attaining optimal well-being (enlightenment).

Third, there was a significant decrease in negative affect for the experimental group, while the comparison groups' scores remained stable over time. This finding is in contrast to other studies which reported no decrease in negative emotion after loving kindness meditation (Frederickson et al., 2008; Teasdale et al. 2000). However, Jazaieri et al. (2013) did find a decrease in negative emotion, specifically worry, among participants who underwent compassion cultivation training. The authors suggested that focusing on compassion and the suffering of others, participants may have developed more adaptive ways of coping with distress, leading to a decrease in worry. In context of the current study, the same may have occurred for the experimental group, in the sense that they experienced less negative affect in general due to increased psychological flexibility and adaptability. Likewise, according to Buddhist theory, learning to cherish others such as through increasing love and compassion for others decreases negative states of mind (Gyatso, 2003, 2010).

The fourth finding in the current study, namely that there was a significant decrease in negative affect for the girls in the experimental group compared to the boys in the experimental group, could partially be understood in light of research that suggest that there are gender differences in emotional experience. Women seem to report higher levels of both positive and negative emotions than men and seem to experience more intense emotional experiences (Fujita, Diener, & Sandvik, 1991). It is therefore possible that the girls in the experimental group experienced the CM training more intensely on an emotional level resulting in a significant decrease in negative

emotions. However, gender differences in the effects of meditation on well-being require further research attention.

Unexpectedly, there were significant increases in levels of life satisfaction, self-acceptance, autonomy, purpose in life and environmental mastery for both the experimental and comparison groups, with only environmental mastery increasing more for the experimental group in comparison to the comparison group. It is most likely that that the reading material from Seligman (2002), may have increased the comparison groups' awareness of ways to enhance well-being and possibly led to implementing some intentional activities, such as helping others. Further, there is some evidence that reading positive psychology-based self-help books may increase life satisfaction (Parks & Szanto, 2013) which may partly explain the results found in this study. Both CM and reading on virtue and happiness may thus be conducive to enhance facets of well-being. However, the lack of difference in increases in well-being between the two groups may also have been due to the small sample size, the placebo effect and chance factors as the readings were limited in scope.

Levels of positive affect and positive relations with others remained unchanged overall for both groups in this study. In contrast, Fredrickson et al. (2008) did find a significant increase in positive relations with others after a seven week loving-kindness meditation intervention. Their study involved more intensive meditation training, which involved practicing meditation several times a week at home following a meditation CD, in addition to a weekly one hour meditation class. Further, Fredrickson et al (2008) primarily focused on meditation on loving-kindness which may be more conducive to increasing positive relations with others as a facet of well-being. In conjunction with the findings of the current study, it further suggests the possibility that

different forms of meditation may facilitate increases in different facets of well-being which needs to be investigated through further research.

The relatively short period of eight weeks of meditation training in the study was possibly also not long enough to effect change in positive affect and positive relations with others. According to Mahayana Buddhist theory (Gyatso, 2000, 2003), gentle steady effort must be applied over a long period, inside and outside of meditation, to gain a deep experience of such virtuous states of mind. Since it may require a long time to change a lifetime of mental habits, a longitudinal study may be more appropriate in evaluating the full benefits of meditation training on psychological well-being.

Further, considering the lack of change in positive affect for the experimental group, it is important to point out that the PANAS-C (Laurent et al., 1999) does not measure positive emotions such as love, contentment and compassion, rather, it measures positive affect. Although positive affect and positive emotions are related (Fredrickson, 1998, 2005), it is possible that the total scores on the PANAS-C did not reflect changes in the specific positive emotions focused on in the CM intervention, such as love, compassion, contentment, and joy. It has to be noted that CM training does not primarily aim to improve positive affective states, as conceptualized from the hedonic perspective on well-being, but aims instead to develop facets of well-being which are related to eudaimonic views on well-being.

The results of this study may also be considered in view of increased attention given to school-based interventions to enhance well-being and the growing field of positive education (Knoop, 2013). It confirms the importance of utilizing school settings as central contexts of development, and integrating positive psychology principles into the curriculum. Specifically, implementing meditation practices as part of a whole school approach to promote mental health (Weare & Nind, 2011) offers one opportunity

to extend its benefits. However, as meditation teachers trained specifically in the NKT tradition are required to deliver this intervention and investment by school management is needed, wider implementation may initially be difficult to achieve.

Despite some promising findings there are several limitations to this study. The sample size was relatively small and could be considered a highly-self-selected sample because of the voluntary nature of participation. Further, the results could have been more comprehensive if measurement of symptoms such as anxiety and depression were included. It could also have been beneficial to have incorporated a neutral control condition or other forms of meditation, such as mindfulness meditation, to confirm the effects of the CM training on psychological well-being.

Conclusion

Overall, the results suggest that contemplation meditation seems to have some value as an intervention to increase psychological well-being among adolescents, particularly as it relates to eudaimonic facets of well-being. Furthermore, focusing on developing compassion as an original purpose of meditation, may contribute to the effect of meditation on positive psychological functioning. Moreover, the present findings also suggest that more attention could be focused on exploring compassion as a positive moral emotion which builds personal psychological resources; similar to how elation and gratitude have been categorized as positive moral emotions because they build personal and social resources (Algoe & Haidt, 2009).

Future research could include different age groups, cross-cultural populations, and longitudinal studies on the effect of CM on well-being. The effect of CM could also be investigated with respect to character strengths and virtues, moral competence, pro-social behaviors and intentions, positive and negative emotions and positive moral

emotions, as the tenets of Buddhist traditions suggest that meditation is cardinal in developing these facets of positive functioning.

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