

Does passage meditation foster compassionate love among health professionals?: A randomised trial

Doug Oman^{a*}, Carl E. Thoresen^b and John Hedberg^c

^a*School of Public Health, University of California, 50 University Hall, MC#7360, Berkeley, 94720-7360 USA;* ^b*Department of Psychology, Stanford, c/o 800 Blossom Hill Road, Los Gatos, 95032 USA;* ^c*Department of Medicine, University of Colorado Health Sciences Center, c/o 165 S. Union #800, Lakewood, 80228 USA*

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An emerging scientific literature is investigating the construct of “compassionate love,” love that is “centered on the good of the other,” linked to physical and mental health. We evaluated effects of an 8-week, 16-hour programme for physicians, nurses, chaplains, and other health professionals, using nonsectarian, spiritually based, self-management tools. Participants were randomised to intervention ($n=30$) or wait-list ($n=31$). Pretest, post-test, 8- and 19-week follow-up data were gathered on six measures of prosocial qualities. Favorable treatment effects ($p<0.05$) were found for compassionate love ($d=0.49$), altruistic actions ($d=0.33$), perspective-taking ($d=0.42$), and forgiveness ($d=0.61$). Treatment adherence fully mediated effects on compassionate love. Furthermore, stress reduction mediated treatment effects on compassionate love, perspective-taking, and forgiveness; each also mediated gains in caregiving self-efficacy. This encouraging evidence suggests that nonlaboratory psychospiritual interventions can boost compassionate love to benefit the recipients and the larger society.

Keywords: health promotion; spirituality; religion; altruism; forgiveness; empathy; mediation

Introduction

An emerging scientific literature is investigating the construct of “compassionate love . . . the kind of love that ultimately centers on the good of the other” (Underwood, 2008, p. 3). Compassionate love has sometimes also been called “altruistic love” or even “unlimited love” (Fehr, Sprecher, & Underwood, 2008; Post, Underwood, Schloss, & Hurlbut, 2002). Compassionate love has inspired recent research initiatives from the Fetzer Institute, the Templeton Foundation, and other funding agencies (Post, 2003). It is also a kind of love that is widely extolled in religious traditions (Post et al., 2002; Sorokin, 1954/2002). Compassionate love appears to have important social, personal, and health consequences, and is not reducible to other types of love or other prosocial qualities (Fehr et al., 2008). For example, compassionate love “is not identical with the often hormonally driven romantic love [or] the natural bonding with offspring,” and it “is more

*Corresponding author. Email: DougOman@post.Harvard.edu

rich conceptually than altruism [which] may be done merely from habit” (Underwood, 2008, pp. 3, 5). Nor is compassionate love “reducible to empathy, although empathy has a role in love . . . the capacity to sense the experience of the other has no inherent moral or loving direction” (Post, 2003, p. 46).

Emerging research on compassionate love has been tied together by a conceptual foundation supplied by Underwood (2002, 2008). In her framework, compassionate love is viewed as arising from substrate conditions that include emotional and cognitive factors, such as empathy, as well as cultural, environmental, social, and other situational influences. In this framework, two defining features of compassionate love are appropriate motivation (“centered on the good of the other”) and discernment (“understanding something of . . . what might be appropriate to truly enhance the other’s well-being”) (Underwood, 2008, p. 7). Because of these motivational and discernment requirements, compassionate love may be expected in most cases to produce positive outcomes for the recipient, recently borne out by empirical findings to date. Several studies have also reported positive effects on the *giver*, including enhanced self-esteem, positive mood, better relationships, improved health, and increased spirituality. To facilitate ongoing research on compassionate love, Fehr and Sprecher (2008; Sprecher & Fehr, 2005) developed and validated a 21-item scale with a well-articulated conceptual basis, known psychometric properties, and three parallel versions (for giving compassionate love to intimate partners, close others, and strangers/humanity). Overall, recent work on compassionate love has been summarised in a volume by Fehr et al. (2008). This volume provides considerable evidence in support of Underwood’s (2002, 2008) theoretical framework linking compassionate love to various outcomes, and to substrate, discernment, and motivational factors (Perlman & Aragón, 2008). Compassionate love research has been informed by decades of research on closely aligned constructs, such as compassion, gratitude, and forgiveness (Lopez & Snyder, 2003; Park, Peterson, & Seligman, 2004; Sorokin, 1954/2002).

Notably absent from published research, however, have been studies of *interventions* that demonstrate sustained increases compassionate love in real-world settings (i.e. *in vivo*). This major gap is problematic for several reasons. Most important, of course, is that many positive outcomes are likely to flow from an increased prevalence of compassionate love in society. Identifying effective interventions is a major step towards developing social, cultural, institutional, or policy approaches to fostering compassionate love and its sequelae. Furthermore, experimental studies can provide key insights about longer term causal relations that are unavailable from observational studies alone. That is, over both longer as well as shorter time periods, randomised experiments are a gold standard for generating reliable inferences about hypothesised causal antecedents and effects.

The possibility of developing effective compassionate love interventions is suggested by various lines of evidence. For example, laboratory-based experimental studies have documented short-term increases in compassionate love indicators from brief interventions to activate attachment security (i.e. feeling of being loved and protected) (Mikulincer & Shaver, 2007). Earlier, non-laboratory intervention studies have successfully targeted related constructs, such as altruism, empathy, and forgiveness (e.g. Harris et al., 2006; Midlarsky & Kahana, 1994; Shapiro, Schwartz, & Bonner, 1998; see also Graber & Mitcham, 2008). Perhaps most importantly for compassionate love research, Underwood’s (2008) theoretical framework identifies many potentially malleable antecedents, such as emotional, cognitive, and social factors, that could be targeted by interventions.

In this article, we report effects on compassionate love and related outcomes from an 8-week, 2-hour training for physicians, nurses, chaplains, and other health

professionals ($N = 58$). Participants were trained in Passage Meditation, part of a programme featuring eight practices or “points” that are nonsectarian and can be used within any major religious tradition or outside of all traditions (Easwaran, 1978/2008). We describe the intervention and several processes that plausibly could foster compassionate love. We then report intervention effects assessed at post-training, 8-week follow-up and 19-week follow-up, on compassionate love and three related constructs: altruistic behavior, empathy, and spiritually motivated forgiveness. Potential mediators and moderators are analysed, including adherence to programme practices, stress reduction, and increased access to spiritual resources. Compassionate love gains are also analysed as possible mediators of previously reported increases in caregiving self-efficacy (Oman, Richards, Hedberg, & Thoresen, 2008). We close by discussing implications and further directions.

The Eight-Point Programme of passage meditation

The Eight-Point Programme (EPP) is a set of eight practices or “points,” summarised in Figure 1, that were systematised by Easwaran (1978/2008). Like the well-documented programme of Kabat-Zinn (1990), the EPP is based on meditation, contains a support group component, and uses a variety of related methods to integrate meditative states of mind, experienced during formal sitting practice, into the remainder of daily living. Each EPP point is analogous to practices that are indigenous to major religious traditions, and have also been used in previously studied healthcare interventions (Oman, Flinders, & Thoresen, 2008; Walsh, 1999). Given their seemingly wide cross-cultural compatibility, EPP materials have been translated by indigenous publishing houses into more than 20 European and Asian languages (Flinders, Oman, & Flinders, 2007; Oman, Hedberg, Downs, & Parsons, 2003). The EPP has also been identified as a useful tool in counselling

- 1. Passage Meditation:** Silent repetition in the mind of memorized inspirational passages from the world’s great spiritual/religious wisdom traditions, such as the 23rd Psalm, the Prayer of Saint Francis, or the Discourse on Good Will of the Buddha’s *Sutta Nipata*. Practiced seated, with eyes closed for one-half hour each morning.
- 2. Repetition of a Holy Word or Mantram:** Silent repetition in the mind at times other than meditation of a single chosen Holy Name, hallowed phrase or mantram from a major spiritual/religious tradition.
- 3. Slowing Down:** Setting priorities and reducing the stress and friction caused by hurry.
- 4. Focused / One-pointed Attention:** Giving full concentration to the matter at hand.
- 5. Training the Senses:** Overcoming conditioned habits and learning to enjoy what is beneficial.
- 6. Putting Others First:** Gaining freedom from selfishness and separateness; finding joy in helping others. Think and act first for the needs of others rather than dwelling on one’s own likes and dislikes. When one can promote the true best interests of the whole family, society or world, one’s own true personal needs will thereby be included.
- 7. Spiritual Association:** Spending time regularly with others following the EPP for mutual inspiration and support.
- 8. Inspirational Reading:** Drawing inspiration from writings by and about the world’s great spiritual figures and/or from religious scriptures.

Figure 1. Brief description of Eight-Point Programme (EPP) of Easwaran (1978/2008).

110 and health psychology (Plante & Thoresen, in press) as well as in psychotherapy (Plante, 2009), and has been used in the training of religious professionals (Oman et al., 2007).

The first and foundational practice of the EPP is Passage Meditation, in which the meditator personally selects and memorises a textual passage from a range of spiritual wisdom traditions (e.g. Easwaran, 1982/2009). During the period of meditation, the mind
115 is focused in sequence on one or more chosen passages. In the EPP method, passages reflect what are often called character strengths, such as compassion, forgiveness, hope, patience, or other positive qualities (Peterson & Seligman, 2004). Repeated focusing on a passage also supports retention of its meaning and, in combination with other EPP points, promotes integration into behavior and character. A fuller description of the nature and
120 function of each of the eight points is available elsewhere (Easwaran, 1978/2008).

Previous randomised trials of the EPP have documented health, well-being, and spiritual benefits in samples of health professionals and undergraduates (for reviews, see Flinders et al., 2007; Flinders, Oman, & Flinders, in press). The present sample of EPP-trained health professionals has been the focus of three earlier published reports.
125 One report documented reductions in perceived stress by nearly a full standard deviation (SD) in comparison to the wait-listed control group, sustained at almost 5 months ($d=0.80$, Oman, Hedberg, & Thoresen, 2006). These stress reductions were statistically mediated by adherence to programme practices. Statistically significant treatment benefits were also reported for selected mental health indicators. Qualitative interviews with
130 professional nurses ($N=12$) revealed several participants who reported increased abilities to experience compassion and empathy (Richards, Oman, Hedberg, Thoresen, & Bowden, 2006). Gains of about one-half SD, mediated by adherence to programme practices, were also reported in a 34-item measure of caregiving self-efficacy (perceived confidence, $d=0.40$, Oman, Richards et al., 2008).

135 A second randomised trial of the EPP focused on undergraduates ($N=44$). Participants were trained for 90 minutes/week over 8 weeks in the EPP, Mindfulness-Based Stress Reduction (MBSR, Kabat-Zinn, 1990), or were assigned to a wait-listed control group. The EPP and MBSR interventions (vs controls) demonstrated statistically significant gains in forgiveness, reductions in stress, and marginally significant reductions
140 in rumination, measured at post-test and 8-week follow-up (Oman, Shapiro, Thoresen, Plante, & Flinders, 2008). At 8-week follow-up, the EPP training led to gains in mindful attention of more than a full SD ($d=1.08$) versus controls, slightly larger than the corresponding MBSR mindfulness gains ($d=0.93$, Shapiro, Oman, Thoresen, Plante, & Flinders, 2008). The EPP and MBSR groups also each demonstrated substantial
145 reductions in negative (maladaptive) religious methods of coping with stress, and reductions in negative views of God ($d=0.80$ and 0.73 , respectively, Oman et al., 2007). The EPP group, but not the MBSR group, demonstrated statistically significant gains versus controls in nonmaterial (intrinsic) aspirations ($d=0.65$). Finally, the EPP group, but not the MBSR group, demonstrated gains versus controls in several measures of
150 *spiritual modeling*, the capacity to learn from other traditional or community-based people who exemplify spiritual qualities such as compassion, forgiveness, or related virtues (Bandura, 2003; Oman & Thoresen, 2003; Oman et al., 2009). In particular, in comparison to the control group, undergraduates trained in the EPP demonstrated gains in self-efficacy for learning from spiritual models ($d=0.92$, using a 10-item scale). They also
155 showed gains versus controls in the reported influence of prominent/traditional spiritual models ($d=0.81$, on a single-item 5-point Likert scale), and the availability of pre-1900 spiritual models ($d=0.78$, assessed as the number, up to 2, of named spiritual models who lived before 1900) (Oman et al., 2007).¹

Several earlier studies of the EPP have also documented other health-related benefits, including reduced stress among teachers in training and improved psychological well-being and fewer risky sexual behaviors among gay men (Flinders et al., 2007).

EPP influences on compassionate love

Increased compassionate love is a plausible but hitherto unexamined effect of the EPP. The EPP could foster compassionate love through several partially overlapping mechanisms. One plausible mechanism is stress reduction due to meditation, which is supported by a large body of empirical evidence (e.g. Murphy, Donovan, & Taylor, 1999; Oman et al., 2008c; Walsh & Shapiro, 2006). Reduced stress, in turn, may foster conditions that give rise to compassionate love. For example, diminished stress may facilitate reductions in perceived time urgency, improved recognition of others' needs, enhanced attachment security, increased empathy, and greater activation of the caregiving system (Fehr & Sprecher, 2008). These considerations suggest the following two hypotheses:

Hypothesis 1. EPP training will lead to increases in measures of compassionate love (Hypothesis 1a) and related constructs, including empathy, altruism, and forgiveness (Hypothesis 1b).

Hypothesis 2. Reductions in stress will partly or fully mediate training-induced gains in compassionate love (Hypothesis 2a), and in related constructs (Hypothesis 2b).

Another plausible mechanism concerns prosocial attitudes and cognitions. Empirical evidence suggests that meditative practices foster cognitions and attitudes that contribute to compassionate love, such as empathy, forgiveness, and other prosocial virtues (Walsh & Shapiro, 2006). For example, increased empathy among meditators, compared to controls, was found in an 8-week training for medical students ($N=73$, randomised, Shapiro et al., 1998), as well as in a 4-week training for counselling psychology students ($N=39$, nonrandomised, Lesh, 1970). One randomised study, noted earlier, also found that the overall EPP programme can raise levels of forgiveness (Oman et al., 2008c). More generally, many studies have reported considerable evidence that meditation fosters skill in self-regulation, probably due to the focus on training attention. Note that self-regulation serves as an essential underpinning of all prosocial virtues, including compassionate love (Baumeister & Exline, 2000; Walsh & Shapiro, 2006). Furthermore, as noted earlier, empirical evidence indicates that mindfulness is enhanced by the EPP, and this kind of attention may directly support the accurate discernment of the needs of others, a key component of compassionate love (Block-Lerner, Adair, Plumb, Rhatigan, & Orsillo, 2007). With considerations noted earlier, this suggests that:

Hypothesis 3. Adherence to EPP programme practices will partly or fully mediate training-induced gains in compassionate love (Hypothesis 3a) and in related constructs (Hypothesis 3b).

Another set of mechanisms is suggested by several studies that have linked higher levels of compassionate love to religiousness (Fehr & Sprecher, 2008; Saroglou, Pichon, Trompette, Verschuere, & Dernelle, 2005; Sprecher & Fehr, 2005). EPP practices offer tools for drawing upon cognitive resources embedded in religious and spiritual wisdom traditions, such as spiritual models, and does so more than many other well-studied systems of meditation (Flinders et al., in press; Oman & Beddoe, 2005; Oman & Thoresen, 2007). As Post (2003) noted, "love is less taught didactically . . . than it is *transmitted* through models" (p. ■). For many people, the lives of particular traditional spiritual

205 models (e.g. Jesus, the Buddha, or others from all faiths) may exemplify compassionate
love and other prosocial virtues, in ways that are seldom available from other sources
(Steen, Kachorek, & Peterson, 2003). As noted earlier, empirical evidence suggests that the
EPP fosters increased abilities for learning from such spiritual models (Oman et al., 2007).

210 In scientific psychology, the most fully developed account of social learning is provided
by Bandura's (1986) social cognitive theory. According to this theory, learning from
spiritual models occurs through four fundamental psychological processes (Bandura, 2003;
Oman & Thoresen, 2003): *attention* to the model, *retention* in memory, *reproduction*
in behavior, and *motivation*. Historically, in their own ways, major religious traditions
215 In several ways, the EPP supports these same four social learning and spiritual
modelling processes (see detailed analyses by Oman et al., 2007, 2008a). The reproduction
in behavior of prosocial virtues is especially encouraged by the EPP practice of "putting
others first" (Point 6).²

220 A mediating role for spiritual resources is consistent with moderation by baseline
spirituality observed in previous EPP studies. More specifically, in multiple cohorts,
lower initial levels of one or more dimensions of spirituality and/or religion have
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Similar dynamics may operate for EPP impacts on compassionate love. This
suggests:

230 Hypothesis 4. Larger gains in compassionate love (Hypothesis 4a) and related constructs
(Hypothesis 4b) will be moderated by (i.e. associated with) lower pre-intervention levels of one
or more spiritual or religious covariates.

235 Finally, these various love-enabling processes are not likely to operate in isolation.
Over time, EPP processes that foster compassionate love could reinforce each other,
creating what Ryff and Singer (1998) called "positive spirals." For example, reduced stress
could free up energy for maintaining self-regulation and enacting compassionate love, even
as improved self-regulation and more frequent enactment of compassionate love may
prevent many stressful situations from arising. Such potential synergies add further
plausibility to Hypotheses 1–3.

Benefits from compassionate love

240 What about *consequences* from developing compassionate love? As noted earlier,
compassionate love and related constructs are important elements of caregiving by
health professionals (Graber & Mitcham, 2008). Caregiving self-efficacy gains from EPP
training have been observed both elsewhere and in the present sample (Oman et al., 2003,
2008b). Accordingly, a final hypothesis is that:

245 Hypothesis 5. Gains in compassionate love (Hypothesis 5a), or in related constructs
(Hypothesis 5b) will partly or fully mediate training-induced gains in relational caregiving
self-efficacy.

250 In sum, then, our five hypotheses are that EPP training will (1) produce gains
in compassionate love and related constructs; these gains will be (2) mediated by stress
reductions, (3) mediated by adherence to treatment, and (4) moderated by baseline
spirituality/religion; and these gains will in turn mediate gains in caregiving self-efficacy.

Methods

Sample, setting, and recruitment

The intervention was hosted at a large hospital located in Colorado. Participants ($N=61$) were recruited through in-service talks, flyers, and word of mouth at two local hospitals possessing a combined staff of approximately 2000 persons. Promotional materials described the programme as involving “8 tools that can be practiced within any religious context, or none at all” and as “based on meditation from selected inspirational passages and 7 other skills.” Enrollment was open to health professionals with current patient contact. Participants were eligible for continuing professional education credit, and received stipends of \$100 after completing all assessments. The project was approved by the Institutional Review Boards of the host hospital and of the Public Health Institute of Oakland, California.

Randomisation and schedule of assessments

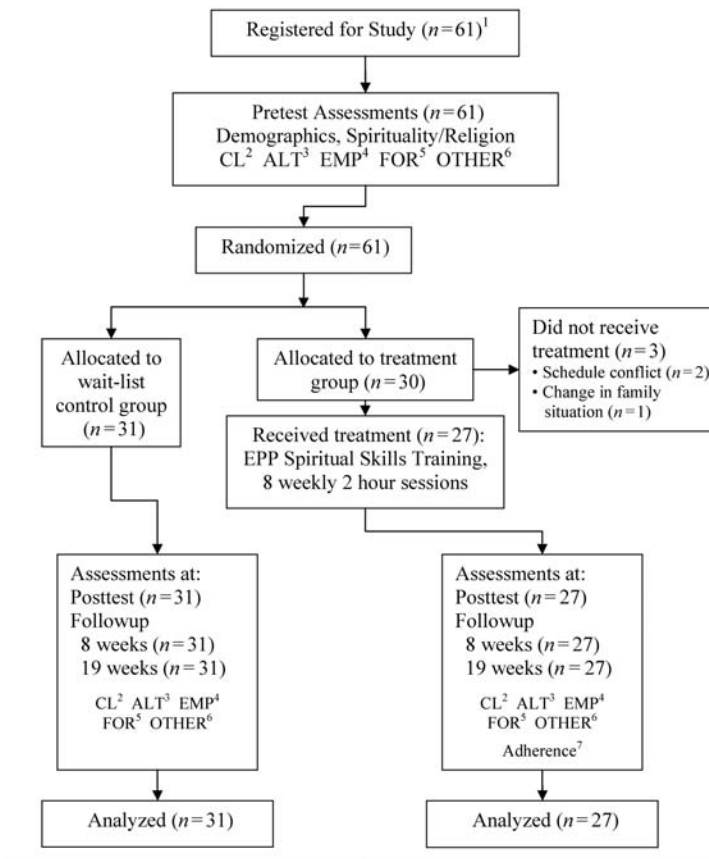
Prospective participants were instructed to attend one of three registration sessions in September 2002, where they gave consent, completed a baseline pretest assessment (Exam 1), and were then informed of their randomised group assignment. Three additional preplanned quantitative assessments occurred after the last training session (Exam 2), 8 weeks later (Exam 3), and 19 weeks later (Exam 4). Exams 2, 3, and 4 of the treatment and control groups took place in separate rooms at the host hospital. Between Exam 1 and Exam 4, wait-listed participants were not provided with any further information about the intervention.³ EPP training for wait-listed participants began immediately (after a 5-minute break) following the fourth assessment. Dropouts ($n=3$) were more likely to be “other” or no denomination than Protestant or Roman Catholic (2-tailed p -value [p_2] <0.05). Neither treatment condition nor drop-out was significantly associated with other covariables or outcomes ($p_2>0.10$). Participant flow is summarised in Figure 2.

Participants

Table 1 displays selected characteristics of the 58 final participants included in the quantitative intent-to-treat analyses. Women participants were more ($n=50$) than men ($n=8$). Reported occupations included nurse ($n=35$), physician ($n=7$), chaplain ($n=2$) and others such as physical therapist, occupational therapist, and psychological counsellor ($n=14$). Participants reported a mean of 22.3 years ($SD=9.1$) of total experience with patient care. In comparison to US adult population means, enrolled participants had higher levels of altruism, and similar levels of compassionate love and empathic concern.⁴ On average, they also characterised themselves as *moderately* spiritual, but only a bit more than *slightly* religious, representing somewhat greater spirituality and less religiousness than the US adult population mean (Idler et al., 2003).

Intervention

We implemented an adaptation of the EPP that emphasised issues relevant to healthcare professionals with patient contact in hospital settings. Two texts were used as a source of assigned readings and recommended meditation passages (Easwaran, 1978/2008; 1982/2009, 1991 editions used), and a treatment protocol was developed.



¹Approximately 75% of participants enrolled who expressed interest.
²CL=Compassionate Love ³ALT=Altruistic Actions ⁴EMP=Empathy (perspective-taking, empathic concern, personal distress) ⁵FOR=Forgiveness ⁶OTHER variables analyzed for change (stress, caregiving self-efficacy) ⁷ADH=Adherence to EPP Practices (for each of 8 points, and "overall").

Figure 2. Flow of participant progress through study phases.

Additional information about the format and content of weekly meetings, and about recruitment and other study procedures, is available elsewhere (Oman et al., 2006).

295 **Outcome measures**

Effects from treatment were computed for compassionate love, and for five conceptually related constructs that reflect both attitudinal (e.g. three dimensions of empathy) and behavioral (e.g. altruistic actions) facets of compassionate love. With two exceptions noted later, test/retest and baseline internal reliabilities were adequate, and comparable with findings from previous studies. All outcomes were measured at each of the four examinations (pretest, post-test, 8-week follow-up, and 19-week follow-up).

Compassionate love

At the time these data were gathered, Sprecher and Fehr's (2005) measures had not yet been developed. To measure compassionate love, we therefore employed two items from

Table 1. Selected participant characteristics by treatment status.

Characteristic	Number (percent), by Group			<i>P</i> (2-tailed)
	Combined	Treatment	Control	
Gender				
Female	50 (86)	23 (87)	27 (85)	0.83
Male	8 (14)	4 (13)	4 (15)	
Age				
26–39 years	7 (12)	2 (7)	5 (16)	0.73
40–49	20 (34)	10 (37)	10 (32)	
50–59	22 (38)	10 (37)	12 (39)	
60–70	9 (16)	5 (19)	4 (13)	
Occupation				
Nurse	35 (60)	19 (70)	16 (52)	0.32
Physician	7 (12)	2 (7)	5 (16)	
Other	16 (28)	6 (22)	10 (32)	
Education				
Less than 16 years	13 (22)	8 (30)	5 (16)	0.44
16–18	32 (55)	13 (48)	19 (61)	
19 or more	13 (22)	6 (22)	7 (23)	
Marital Status				
Married currently	36 (62)	15 (56)	21 (68)	0.30
Separated/divorced	14 (24)	9 (33)	5 (16)	
Widowed/never married	8 (14)	3 (11)	5 (16)	
Spiritual identity				
Spiritual and religious	26 (45)	11 (41)	15 (48)	0.70
Spiritual, not religious	29 (50)	15 (56)	14 (45)	
Not spiritual	3 (5)	1 (4)	2 (6)	
Religious denomination				
Protestant	22 (38)	9 (33)	13 (42)	0.80
Roman Catholic	17 (29)	9 (33)	8 (26)	
Other	7 (12)	4 (15)	3 (10)	
None	12 (21)	5 (19)	7 (23)	
Extent religious				
Very/moderate	25 (43)	10 (37)	15 (48)	0.68
Slightly	25 (43)	13 (48)	12 (39)	
Not at all	8 (14)	4 (15)	4 (13)	
Extent spiritual				
Very	14 (24)	5 (19)	9 (29)	0.61
Moderate	31 (53)	16 (59)	15 (48)	
Slightly/not at all	13 (22)	6 (22)	7 (23)	
Religious attendance				
Weekly or more	19 (33)	8 (30)	11 (35)	0.33
Less than Weekly	37 (64)	19 (70)	18 (58)	
Never	2 (3)	0 (0)	2 (6)	
Previous meditation				
Yes	24 (41)	10 (37)	14 (45)	0.53
No	34 (59)	17 (63)	17 (55)	
All combined (total)	58	27	31	

305 the Daily Spiritual Experiences Scale (DSES), part of the widely used Multidimensional Measure of Religiousness/Spirituality (MMRS, Fetzer, 1999). Two specific DSE items have been recommended and employed in previous studies of compassionate love (Underwood, 2008). These two DSE items focused on daily experiences of compassion

310 (“I feel a selfless caring for others”) and mercy (“I accept others even when they do things I think are wrong”). Participants were asked to “please indicate how often you feel as described” on a 6-point scale ranging from *never or almost never* (1) to *many times a day* (6). Total compassionate love scores ranging from 1 to 6 were computed as the two items’ mean. Qualitative and quantitative evidence in previous studies have supported convergent and divergent validity (Underwood, 2002, 2008), and baseline internal reliability in this study was adequate ($\alpha=0.74$). Underwood (2008) noted that “the two DSES items do not fully operationalize compassionate love, but they do begin to get at the assessment of the internal elements involved in the model. Together with measures of behaviors, other attitudes, substrate, and conditions, they can help us to operationalize compassionate love” (p. 22).

320 *Altruism*

Altruistic actions were measured with 20 items drawn from a scale developed by Rushton, Chrisjohn, and Fekken (1981) and refined and expanded by Johnson, Danko, Darvill, and Bochner (1989). The full Johnson scale was uncorrelated (males) or slightly negatively correlated (females) with socially desirable responding, and had 2-week test–retest reliability of 0.94 in a sample of US undergraduates. Of the 56 items in the Johnson scale, we selected 11 items that were included in the 2002 and 2004 General Social Surveys (GSS, Smith, 2008), as well as nine additional items that appeared most generalisable or relevant for the workplace. Wording was changed slightly on some items.⁵ Examples of items include “I have taken time to give careful directions to a stranger,” and “I have shared credit for an accomplishment when I could easily have taken it all.” Item responses were coded from 0 (*not at all in the past year*) to 5 (*more than once a week*). Possible scale responses ranged from 0 to 100, with acceptable internal reliability in the present sample ($\alpha=0.79$).

Empathy

335 Three dimensions of empathy, two favorable and one unfavorable (i.e. seen as immature), were measured using the well-validated and widely used subscales of the Interpersonal Reactivity Index (IRI, Davis, 1994). The IRI includes subscales for *perspective taking* (cognitive features of empathy, e.g. “I try to look at everybody’s side of a disagreement before I make a decision”), *empathic concern* (affective features of empathy manifested as concern for the other’s welfare, e.g. “I often have tender, concerned feelings for people less fortunate than me”), and *personal distress* (personal self-focused distress at witnessing another’s difficulties, e.g. “When I see someone who badly needs help in an emergency, I go to pieces”). Personal distress is regarded as an immature form of empathy, often maladaptive, and is negatively correlated with the perspective taking subscale; reductions in personal distress in the treatment group were therefore hypothesised. Each subscale includes seven items scored from *does not describe me well* (0) to *describes me very well* (4), producing summary scores from 0 (low) to 28 (high). Baseline internal reliability was adequate for perspective-taking ($\alpha=0.76$) and personal distress ($\alpha=0.90$). Empathic concern reliability was lower at baseline ($\alpha=0.47$), but adequate and in the usual range at Exams 2 to 4 ($0.70 < \alpha < 0.83$).

Forgiveness

Two items were available to measure spiritually based forgiveness, both drawn from the forgiveness short form of the widely used MMRS (Fetzer, 1999). Items asked whether,

because of his or her “religious or spiritual beliefs,” the participant had “forgiven myself for things that I have done wrong,” or had “forgiven those who hurt me.” A third short-form item containing a theistic reference was not used. Together, the two items offered a brief look at perceived forgiveness of others and of oneself, two processes that are distinct in many ways, but do appear to share some underlying processes, such as skills in emotional self-management (e.g. attention to emotions, emotional clarity, and emotional repair – see findings by Hodgson & Wertheim, 2007). Responses were coded on 4-point scales from *never* (1) to *always or almost always* (4), and total forgiveness was computed as the mean of the two items. Validity is supported by correlations with a variety of measures administered on the GSS (Idler et al., 2003). Internal reliability was low at baseline ($\alpha = 0.53$). However, at Exams 2 to 4, internal scale reliability was conventionally adequate ($0.72 < \alpha < 0.83$). As reported later, we found similar trajectories for treatment effects on each individual item.

Covariables

Covariables assessed at Exam 1 included demographics, training status, total years of patient contact, religious involvement, and whether participants had “ever practiced or been trained in another interior/mental form of meditation” (Table 1). Self-rankings were assessed of spiritual intensity (the extent that participants considered themselves spiritual), with responses coded on 4-point scales (*not at all*, *slightly*, *moderately*, *very*), a widely used item from the MMRS (Fetzer, 1999, p. 88). A similar measure of religious intensity was included. What we termed participants’ *spiritual identities* were assessed by asking “which of the following statements comes closest to describing your beliefs: . . . religious and spiritual; spiritual but not religious; religious but not spiritual; neither religious nor spiritual.” Tendencies towards socially desirable responding were assessed with a short (13-item) version of the Marlowe-Crown scale (Reynolds, 1982).

Stress, a potential mediating factor, was measured for all participants at all four assessments with the commonly used 14-item Perceived Stress Scale (Cohen, Kamarck, & Mermelstein, 1983). Considerable research has established its validity in health-related studies.

Adherence to EPP practices, another potential mediating factor, was assessed in the same way as reported in several previous studies (e.g. Oman et al., 2006; Shapiro et al., 2008). One separate self-report question was asked about each of the eight practices, and an additional question regarding each participant’s adherence to the EPP’s “practices as a whole.” In these nine questions, addressed to the treatment group at Exams 2, 3, and 4, adherence over the past 2 weeks was rated on a 5-point scale, from *not at all* (1) to *consistently* (5). Since participants untrained in specific programme practices would have been unable to use them, adherence measures were set to 1 (*not at all*) for wait-list participants at all exams and for the treatment group at pretest (for further details, see Oman et al., 2006).

Caregiving self-efficacy, a potential consequence of compassionate love, was measured with the 34-item *relational caregiving self-efficacy* scale (Oman et al., 2003). It assesses self-efficacy (perceived competence) for various facets of relating well with patients and coworkers, and dealing with ultimate/spiritual concerns. Examples of items include “help families of patients to deal with the death of patients” and “maintain my equanimity when working with difficult or argumentative coworkers.” The measure had good internal

reliability ($\alpha = 0.93$). Treatment effects and additional psychometric properties have been reported elsewhere (Oman et al., 2008b).

Statistical analyses

To assess effects of treatment condition on outcome measures and to test for mediation, we followed procedures used earlier to analyse effects on perceived stress and caregiving self-efficacy (Oman et al., 2006, 2008b). For each outcome variable, we used hierarchical linear regression (HLM) models, an emerging tool of choice for analysing longitudinal and other complex datasets with many advantages over earlier methods (e.g. Analysis of Variance, Hoffman & Rovine, 2007; Raudenbush & Bryk, 2002). Level 2 variables pertained to 58 participants without reference to time, whereas Level 1 variables pertained to $58 \times 4 = 232$ time-specific occasions when a participant was assessed. As reported later in the Results section, these sample sizes were adequate to detect treatment effects of approximately moderate or larger size, which possess the greatest clinical and practical interest (Cohen, 1988). Our HLM models adjusted for preexisting individual differences in the outcome variable (using a Level 2 random effect), and allowed for correlated errors within individuals across time (a generalisation of an autoregressive model). To explore whether the treatment effect might change or decay over time, an initial set of regression models permitted the treatment effect to vary between Exams 2, 3, and 4 (“time-varying treatment effect”). Within each HLM model, the constancy of treatment effect across time was statistically tested (for rejection at $p_2 < 0.05$ of $H_0: \beta_2 = \beta_3 = \beta_4$, using the notation of Oman et al., 2006). For the four outcomes for which time-constancy over the entire follow-up period (Exams 2, 3, and 4) was statistically acceptable, a second HLM regression estimated the fully time-constant treatment effect. For the two outcomes in which time-constancy was rejected, partially time-constant treatment effects were estimated by retaining data only from baseline plus consecutive exams for which constancy was acceptable (i.e. not statistically rejected). This approach resulted in using data from Exams 1, 2, and 3 to estimate effects on altruistic actions, and data from Exams 1, 3, and 4 for estimating effects on empathic perspective-taking.⁶ Finally, distributions of some outcome measures departed significantly from the normal ($p < 0.05$ at baseline in Shapiro-Wilk tests). For these outcomes, HLM analyses were supplemented with 2-sided nonparametric Wilcoxon tests for treatment versus control group differences in post-baseline changes.

Mediation by adherence was tested by procedures from Baron and Kenny (1986), as described later. Moderation by baseline covariates was examined by their inclusion as Level 2 predictors in time-constant or partially time-constant HLM models, testing for statistical interaction with treatment. The ability of socially desirable responding to explain observed moderating effects of *other* covariates was tested by including main effects and treatment interaction terms both for socially desirable responding and the other covariate of interest.

Results

Effects of intervention

Table 2 presents estimates and confidence intervals for change since pretest. Compassionate love showed mean gains at post-treatment assessments of 0.45 at Exams 2 and 4, and 0.70 at Exam 3. These effects were not significantly different between exams,

Table 2. Pretest values and observed treatment effects at examinations 2, 3, and 4 ($N=58$).

Hypoth. Change Exam 1 direction & pretest values	Treatment effects					
	variable	<i>M</i>	SD	Exam	Tx change–Cx change	
<i>M</i>					95%CI	
+Compassionate Love ^b	3.89	1.08	2	0.45	(0.03, 0.87)	0.13 ^a
			3	0.70	(0.27, 1.13)	0.04 ^a
			4	0.45	(0.02, 0.88)	0.11 ^a
			2–4	0.53	(0.18, 0.88)	0.04 ^a
Altruistic Actions	34.46	10.10	2	1.98	(–1.45, 5.42)	0.14 ^a
			3	4.66	(1.00, 8.32)	0.016 ^a
			4	0.05	(–3.64, 3.75)	0.68 ^a
			2–3	3.36	(0.39, 6.32)	0.008 ^a
+Empathic Perspective-Taking	16.91	4.51	2	–0.31	(–2.14, 1.52)	0.74 ^c
			3	1.78	(–0.07, 3.62)	0.06 ^c
			4	2.02	(0.17, 3.87)	0.03 ^c
			3–4	1.88	(0.08, 3.67)	0.04 ^c
+Empathic Concern	21.16	2.92	2	0.62	(–0.82, 2.07)	0.35 ^a
			3	0.61	(–1.01, 2.24)	0.43 ^a
			4	0.89	(–0.79, 2.57)	0.23 ^a
			2–4	0.69	(–0.59, 1.98)	0.27 ^a
–Personal Distress	9.64	6.20	2	–0.62	(–2.24, 1.00)	0.45 ^c
			3	–0.72	(–2.34, 0.90)	0.38 ^c
			4	–0.96	(–2.58, 0.66)	0.24 ^c
			2–4	–0.77	(–2.08, 0.55)	0.25 ^c
+Forgiveness ^b	2.84	0.58	2	0.46	(0.18, 0.74)	0.004 ^a
			3	0.45	(0.16, 0.74)	0.0102 ^a
			4	0.15	(–0.15, 0.44)	0.24 ^a
			2–4	0.35	(0.12, 0.59)	0.008 ^a

Note: Exam 2–4 (or Exam *a* to *b*) refers to combined analyses of Exams 2, 3, and 4 (or of consecutive exams from *a* to *b*); Tx = treatment Group; Cx = control group; CI = confidence interval; Exam 1 = pretest, Exam 2 = post-test; Exam 3 = 8-week follow-up; Exam 4 = 19-week follow-up.

^aWilcoxon nonparametric tests of change scores for variables that were non-normally distributed ($p < 0.05$) on Shapiro-Wilk tests of Exam 1 distributions.

^bEffect sizes of individual items within scales showed non-identical but generally similar trends at Exams 2, 3, 4, and 2–4: 0.57, 0.63, 0.32, 0.51 (compassion); 0.34, 0.75, 0.58, 0.50 (mercy); 0.40, 0.40, 0.06, 0.30 (forgive others); 0.51, 0.49, 0.22, 0.41 (forgive self).

^c*T*-tests for group differences in mean change from hierarchical linear models.

445 and the time-constant treatment effect was computed as +0.53, which was significantly different than zero ($p_2=0.04$, nonparametric), and had an HLM-based 95% confidence interval [CI] of 0.18 to 0.88. Each scale item showed a similar trajectory over time (for details, see Table 2 footnote). These findings support a favorable treatment effect on compassionate love (Hypothesis 1a). Changes were not moderated by socially desirable responding, and correspond to a standardised effect size of $d=0.49$ (Cohen, 1988) (see Figure 3).

450 As noted earlier, altruistic actions and empathic perspective-taking showed treatment effects that were not constant over time ($p < 0.05$). Altruistic actions effects did not

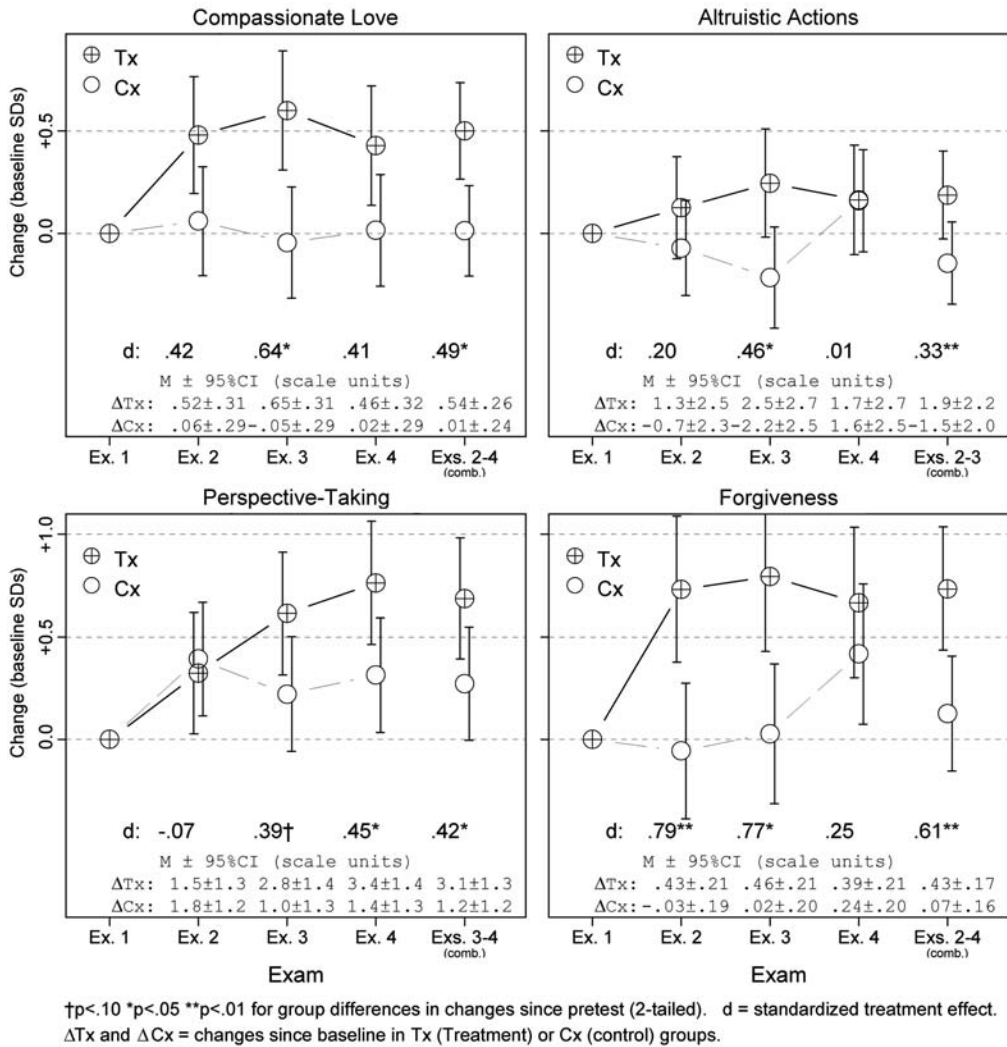


Figure 3. Mean changes from pretest in Compassionate Love, Altruism, Empathy, and Forgiveness, for Treatment (Tx) and Control (Cx) Groups, with 95% Confidence Intervals (CIs).

significantly differ from Exam 2 to Exam 3 ($p_2=0.12$), but dropped from Exam 3 to Exam 4 ($p_2=0.01$). That is, there was a statistically significant decay after Exam 3 in the treatment effect on altruistic actions (due largely, Figure 3 shows, to control group increases, not treatment group decreases). We therefore estimated partially time-constant treatment effects for Exam 2 with Exam 3, revealing a statistically significant mean effect of +3.36 (CI=0.39 to 6.32).

A different trajectory was observed for empathic perspective-taking effects, which increased significantly from Exam 2 to Exam 3 ($p_2=0.03$), but did not significantly change from Exam 3 to Exam 4 ($p_2=0.79$). That is, the data indicated a delayed or *lagged* treatment effect on perspective-taking. We therefore estimated partially time-constant treatment effects for Exam 3 with Exam 4, revealing a statistically significant mean effect

of +1.88. Other dimensions of empathy did not show significant treatment effects at any assessment.

465 Finally, forgiveness showed a fully time-constant treatment effect (for Exams 2 to 4) that was computed as 0.35. However, the effect decayed significantly from Exam 3 to Exam 4 ($p_2 = 0.04$), due largely to increases in the control group, and the test of the time-constant model was only marginally non-significant ($p = 0.06$). We therefore performed an additional sensitivity analysis by computing the partially time-constant effect at Exams 2
470 and 3. This effect was 0.45 (HLM 95% CI = 0.20 to 0.70, $p_2 = 0.003$, nonparametric). Each scale item showed a similar trajectory over time (for details, see Table 2 footnote).

Together, these findings offer considerable support for the existence of treatment effects on altruistic actions, empathy, and forgiveness (Hypothesis 1b), although it appears that in some cases these effects may decay over time, and other cases may be delayed
475 (lagged) in their onset. None of these treatment effect magnitudes were significantly moderated by socially desirable responding. The gains observed here correspond to moderate-sized standardised effects ranging from $d = 0.33$ to $d = 0.61$ (Figure 3).

Moderators of effects

As hypothesised, gains in compassionate love were significantly larger ($p_2 < 0.05$)
480 for participants at lower baseline levels of several spiritual and religious measures listed in Table 1, including spiritual identity, religious intensity, and attendance at religious services (each $p_2 < 0.05$), but not spiritual intensity ($p_2 > 0.10$). Hypothesis 4a was therefore largely supported. However, effects on altruistic actions and forgiveness were not moderated by spiritual and religious covariates, and only spiritual intensity moderated
485 empathic perspective-taking ($p_2 < 0.01$). Thus, Hypothesis 4b received only slight support. In additional exploratory analyses, demographics measures in Table 1 did not moderate effects more often than would be expected by chance.

Mediation of treatment effects by adherence and stress

Compassionate love gains were mediated by adherence to EPP practices according to the criteria of Baron and Kenny (1986). More specifically, in time-constant HLM models,
490 (1) treatment significantly predicted overall adherence ($p_2 < 0.0001$), as reported earlier (Oman et al., 2006); (2) after adjusting for experience of treatment, overall adherence significantly predicted compassionate love ($p_2 = 0.009$); (3) the adjusted treatment effect was smaller in magnitude (at 0.005, $p_2 = 0.98$, it was reduced to approximately 1% of its original value of 0.53); and (4) the null hypothesis of no indirect (mediated) effect was
495 rejected by the Sobel test ($p_2 = 0.009$). Thus, all Baron and Kenny (1986) mediation criteria were supported at a high level of statistical significance ($p_2 < 0.01$). Similar time-constant HLM analyses supported mediation of compassionate love treatment effects by several other adherence measures, including adherence to points 4 and 7 (Focused
500 Attention and Spiritual Association, each $p_2 < 0.01$), points 3 and 6 (Slowing Down and Putting Others First, each $p_2 < 0.05$), and with a trend in the expected direction for each of the four remaining points ($p_2 < 0.20$). Together, these offer strong support for the mediation of gains in compassionate love by adherence to treatment (Hypothesis 3a).

However, treatment effects on perspective-taking, altruism, and forgiveness were not
505 mediated by overall adherence ($p_2 > 0.20$). Hypothesis 3b was therefore unsupported.

Stress mediation of treatment effects was also examined using these same methods (Baron & Kenny, 1986). For compassionate love treatment effects, all criteria for mediation by stress were met significantly ($p_2 < 0.05$ in time-constant HLM regressions). Adjusting for stress reduced the treatment effect to 0.42 (80% of its original value), but it remained significant ($p_2 < 0.05$), indicating that mediation by stress was only partial. These findings support Hypothesis 2a.

Similarly, reduced stress mediated treatment effects on forgiveness ($p_2 < 0.01$ for all criteria), with the effect of treatment reduced to 63% of its original value, and only marginally significant ($p_2 = 0.065$, fully time-constant models).⁷ Stress also mediated empathic perspective-taking gains ($p_2 < 0.05$), with treatment effects reduced to 72% of original value, and no longer significant ($p_2 = 0.14$, HLM models partially time-constant at Exams 3 and 4). Stress did not mediate altruistic action effects. These analyses give partial support to Hypothesis 2b.

Benefits to professional caregiving skills

A final set of HLM analyses showed that compassionate love mediated gains in caregiving self-efficacy ($p_2 < 0.05$ on all criteria), supporting Hypothesis 5a. This mediation was partial, with the adjusted treatment effect reduced to 75% of its original value ($p_2 = 0.07$). Partial mediation of self-efficacy gains by forgiveness was significant ($p_2 < 0.04$), and by empathic perspective-taking was marginally significant ($p_1 = 0.058$, dropping Exam 2 data). But altruistic actions did not mediate self-efficacy gains. These findings partially support Hypotheses 5b.

In additional exploratory analyses, all three constructs (compassionate love, perspective-taking, and forgiveness) were simultaneously entered as predictors of caregiving self-efficacy in a time-constant HLM regression using data from all four exams. All three were independently predictive ($p_2 < 0.05$). Entering stress as an additional predictor did not substantially alter these findings, except that forgiveness dropped to marginal significance ($p_2 = 0.06$). These findings suggest the perhaps commonsensical conclusion that even apart from stress reduction benefits, skills in love, empathy, and forgiveness, each make a distinctive contribution to the capacities of professional caregivers.

Discussion

This study investigated effects from a non-laboratory intervention on compassionate love, a love that is “centered on the good of the other,” and resembles the types of selfless love espoused by major religious traditions. Using randomised methods, we demonstrated gains in compassionate love from an integrated, eight-point programme based on passage meditation and other practices, usable within any major religious tradition, or outside of all traditions (Easwaran, 1978/2008). Over a follow-up period of nearly five months, we observed a statistically significant mean increase in compassionate love of approximately one-half standard deviation ($d = 0.49$), corresponding to what Cohen (1988) called a moderate-sized treatment effect. These gains were fully mediated by adherence to treatment, partially mediated by stress reductions, and could not be attributed to socially desirable responding. Gains were somewhat larger among those with lower baseline levels of spirituality/religion, who may thereby have stood to benefit the most. Compassionate love gains were accompanied by favorable changes in several related constructs, including

550 altruistic action, empathic perspective-taking, and forgiveness. These gains mediated
improvements in relational caregiving self-efficacy (self-confidence in relational aspects of
professional caregiving). Together, study findings contribute several types of new scientific
knowledge. They suggest that the EPP, and perhaps other interventions employing similar
principles, can foster sustained compassionate love gains that benefit individuals as well as
555 the larger society.

Interpretation of findings

Changes of the magnitude observed for compassionate love (approximately half an SD)
represent movement from the lower tertile (33rd percentile) to the population median, or
from the population median to the upper tertile (67th percentile). While such changes are
560 modest, palpable effects on a healthcare organisation work environment and on patient
experiences might plausibly result if improvements of this magnitude could be sustained.

Some of the treatment effects were significantly non-constant over time. Effects
on empathic perspective-taking did not become significant until 8 weeks after the end of
training. Such delayed or *lagged* treatment effects are not common in psychosocial
565 interventions. But elsewhere, significant lagged growth has occurred in EPP effects on
spiritual modelling and mindfulness (also from post-test and 8 weeks later, Oman et al.,
2007; Shapiro et al., 2008). In the present sample, non-significant lagged increases of about
1/3 occurred for effects on stress and caregiving self-efficacy (Oman et al., 2006, 2008b).
Benefits from many lifestyle practices, such as physical exercise, diet, and meditation, are
570 commonly theorised to accumulate over time. Accumulation over time of benefits from
EPP practice might explain the lags seen here in effects on perspective taking and other
measures.

In contrast, *decay* of effects was seen for altruistic actions, which became non-
significant at 19-week follow-up. Diminished benefits over several months are very
575 common in psychosocial interventions, especially if participants lack ongoing support, and
lapse in their adherence to new attitudes, expectancies, and actions. But alternative
interpretations of effect size decay are sometimes plausible. Here, a close inspection of
outcome trajectories over time (Figure 3) shows few declines in the treatment group scores.
Indeed, most measured gains were maintained even at Exam 4 (as was most adherence –
580 see details reported in Oman et al., 2006). Control group scores, however, increased
dramatically from Exam 3 to Exam 4, for both altruism and forgiveness ($p_2 < 0.05$,
2-tailed, in additional time-varying HLM analyses). It seems plausible, therefore, that
treatment effect reductions could be related to positive anticipatory mental states among
control group participants who were expecting to begin, within minutes, their own long-
585 deferred training.

Changes in the final two outcomes, empathic concern and personal distress, were in the
expected directions, but were not statistically significant. Such changes might not exist,
but it is also possible that this study lacked adequate statistical power to detect them.
Previous research suggests each empathy dimension makes a distinctive contribution to
590 helping behavior (Davis, 1994), and therefore perhaps to compassionate love. Recent
findings by Hodgson and Wertheim (2007), however, indicate that perspective-taking
alone fully mediates the contribution of emotion management to forgiveness of others.
The capacity to forgive others may, in turn, be essential for maintaining optimal relations
with both patients and coworkers in high-pressure work environments (see Richards
595 et al., 2006, for examples of interpersonal workplace stressors that require patience

and forgiveness). Perspective-taking, then, may be an especially important foundation for optimal patient interaction, as well as team functioning, in contemporary high-pressure work environments.

Adherence to EPP practices clearly mediated treatment effects on compassionate love. This relationship was robust, and was also marginally supported for each of the eight individual points, providing strong support for a possible causal role of EPP practices in fostering compassionate love. Other outcomes were not significantly mediated by adherence measures. Such lack of correlation between adherence and benefit is not uncommon in intervention studies, and can reflect low statistical power or individually diverse ways of perceiving one's own level of adherence. It could also reflect the known diversity in individual ways of using the EPP practices (e.g. Oman et al., 2008b, Table 3).

Also as hypothesised, stress reductions statistically mediated the gains in compassionate love and other outcomes. Findings of partial mediation by stress support our earlier theorising that the EPP fosters compassionate love through multiple pathways. Also as hypothesised, compassionate love, perspective-taking, and forgiveness mediated gains in relational caregiving self-efficacy (Oman et al., 2008b). Such mediation is consistent with theories that compassionate love contributes to exemplary professional caregiving (Graber & Mitcham, 2008). Due to reciprocal causality, "positive spirals" could also operate between stress reductions, compassionate love gains, and other caregiving skill benefits. Caution is therefore recommended in interpreting causal relations between the various measured outcomes: the stress and self-efficacy analyses performed here do not rule out reverse or reciprocal causality.

Contributions to scientific literature

This paper contributes to scientific knowledge in several ways. To our knowledge, this is the first non-laboratory intervention study of effects on compassionate love. Our findings complement work by Mikulincer and his colleagues, who only examined short-term, laboratory-based outcomes (Mikulincer & Shaver, 2007). The significant observed effects in this study encourage further investigation of EPP programme, and also of the principles underlying the EPP programme, perhaps most notably (1) learning from spiritual models, (2) acquiring skill in contemplative practices, and (3) more broadly, using tools to tap into spiritual and religious resources. Each of these strategies resonates with large and influential lines of scientific theory and research (Bandura, 1986, 2003; Plante, 2009; Walsh & Shapiro, 2006). Together with our growing understanding of substrate factors and dynamics (Fehr et al., 2008), these EPP-derived strategies can potentially inform compassionate love interventions at the level of the individual, organisation, or community (Oman & Thoresen, 2007; Oman et al., 2009). More broadly, spiritual modelling theory – derived, as it is, from Bandura's (1986) social cognitive theory – offers a response to Perlman and Aragón's (2008) call to examine "other theoretical perspectives ... that might be more thoroughly mined for relevance to compassionate love" (p. 449).

Second, this study represents a contribution to empirical research on meditation. Meditation has received intensive scientific study in the west for almost 4 decades, but much of this research has emphasised physiological correlates and health outcomes. Only a very small number of previous studies (e.g. Lesh, 1970; Shapiro et al., 1998) have examined the impact of meditation on character strengths, virtues, and related positive

psychological qualities, a topic of great interest in positive psychology (Peterson & Seligman, 2004). This is the first study of meditation and compassionate love.

645 It is also one of the few empirical studies of a meditative practice that clearly resonates with the *textual* focus of many indigenous Western contemplative practices, such as *lectio divina* (e.g. Carlson, Bacasetta, & Simanton, 1988; Flinders et al., in press). According to Foster (1998) “*meditatio Scripturarum*, the meditation upon Scripture [is] the central reference point by which all other forms of [Christian] meditation are kept in proper perspective” (p. 29). Such culturally resonant methods of meditation may play a distinctive and important role in long-term efforts to disseminate benefits from meditative practices
650 (Hawkins, Kreuter, Resnicow, Fishbein, & Dijkstra, 2008).

Third, this study expands our knowledge of the EPP, a programme with clear Western resonance that has also generated cross-cultural interest in many Asian countries, including India, Japan, China, Korea, and Indonesia (Flinders et al., 2007, in press). This is the first study to examine EPP effects on compassionate love, altruistic behaviors, and
655 empathy. It supports previous findings of forgiveness gains among undergraduates trained in the EPP (Oman et al., 2008c).

Implications for practice

These findings hold implications for diverse types of professional practice and professional education. Compassionate love and its constituents are closely aligned to the ethos of
660 many health and human service professions, including medicine, psychology, education, nursing, social work, public health, and the clergy, which are focused on the good of the client or other service recipient (e.g. Graber & Mitcham, 2008). Legal professionals, too, have recognised the work relevance of skills in compassion (e.g. Silver, 1999). The EPP or its underlying principles thus merit consideration for inclusion in a range of professional
665 education. Educators of nurses and school teachers have long sought to foster allied constructs, such as empathy (MacKay, Hughes, & Carver, 1990). In medicine, educating physicians who are “compassionate and empathetic in caring for patients” was endorsed by the Medical Schools Objective Project (1998, p. 4) of the Association of American Medical Colleges. Eminent humanistic psychologist Rogers (1975) argued that “that a
670 high degree of empathy in a relationship is . . . certainly one of the most potent factors in bringing about change and learning” (p. 3). Much more broadly, nonsectarian spiritual modelling approaches may represent an ethical and effective strategy for reintegrating classical human strengths and virtues into mainstream college curricula (Lerner, 2008; Oman et al., 2008a).

675 An issue of interest concerns whether increased compassionate love, developed through the EPP training, could raise the risk of professional burnout, or “compassion fatigue” (Bride & Figley, 2007; Maslach, Schaufeli, & Leiter, 2000). While such effects cannot be ruled out, we suspect that they are unlikely in most cases. First, as noted earlier, EPP training was associated with large stress reductions in the present sample. Reports
680 elsewhere document that EPP training produced trends towards reduced burnout (less emotional exhaustion, $p_1 < 0.05$, and more sense of personal accomplishment, $p_1 < 0.10$, on the Maslach Burnout Inventory), as well as some increases in vitality and job satisfaction ($p_1 < 0.10$) (Oman et al., 2006). Similar findings are revealed by qualitative interviews (Richards et al., 2006). More broadly, the EPP may in part be viewed as a
685 programme for self-care, a primary recommendation for preventing and alleviating compassion fatigue. Indeed, to prevent compassion fatigue, Bride and Figley (2007) argue

for “standards of self-care for [professional] workers” (p. 153). Operation of the EPP through self-care is consistent with our finding that the stress reductions partially mediated gains in compassionate love (Hypothesis 2), and with findings that the EPP improved attentional self-regulation (e.g. mindfulness), also linked to lower burnout (McCracken & Yang, 2008; Shapiro et al., 2008). Enhancements of compassionate love through these mechanisms should be accompanied by *reduced* risk of burnout. Still, it should be noted that some EPP mechanisms lie outside of a self-care paradigm, and could potentially attenuate, or conceivably even reverse, reductions in burnout risk. For example, if learning from spiritual models occurs in an unbalanced manner, divorced from EPP self-care practices, an EPP adherent could perhaps become maladaptively overcommitted to enacting particular compassionate actions. This is a theoretical possibility that merits future monitoring and investigation. Evidence to date, however, suggests that much more commonly, EPP practice reduces the risk and experience of burnout.

Patients, clients, and other lay individuals may also receive health benefits from tools to cultivate compassionate love. Variables closely aligned to the outcomes measured here have been linked repeatedly to improved physical and mental health. For example, Steffen and Masters (2005) found that compassionate attitudes mediated the relationship between intrinsic religiousness and mental health. Similarly, altruistic actions have been linked to better mental and physical health in several investigations (Schwartz, Meisenhelder, Ma, & Reed, 2003); and at least six studies have reported that altruism, in the form of volunteering, predicts longer life, even after adjusting for well-established risk factors (Oman, 2007). Similarly, much evidence links forgiveness to better mental and physical health (Worthington, Witvliet, Pietrini, & Miller, 2007). More broadly, a wide variety of prosocial qualities or “virtues” have recently been linked to increased life satisfaction (Park et al., 2004). Such benefits may occur through a variety of psychosocial processes, such as reduced rumination, decreased distress, enhanced meaning, and improved social relations and support. Tools for fostering compassionate love may thus represent an important resource for long-term health promotion strategies.

The EPP and Passage Meditation, as noted earlier, have been identified as useful tools for counsellors, coaches, and psychotherapists to share with clients (e.g. Plante, 2009; Plante & Thoresen, in press). Such recommendations are bolstered by our present findings, which document causal links between the EPP and several additional health-related factors. Although more replication in diverse contexts is required, emerging evidence reveals patterns of favorable EPP impact on a wide range of spiritual, health, and competency-related outcomes (Flinders et al., 2007, in press).

Generalisability

Results appear most likely to generalise to other populations that are similarly self-selected. Examples include health professionals who enroll in continuing professional education courses using similar promotional materials, or perhaps community-dwelling adults of diverse ages who enroll in community education programmes for developing personal, social, and spiritual knowledge and skills. Further research would be required to assess generalisability to non-self-selected groups, such as an entire staff of a unit or a hospital. No evidence was found for moderation by most demographics, but smaller numbers of non-nurses, males, non-middle aged, and nonwhite participants suggest considerable caution in generalising to these groups.

Other limitations

Other limitations besides generalisability merit consideration. The absence of an active control group condition limits firm conclusions, since some treatment group advantages may have resulted from active engagement and group support. Possible causes of temporal declines in treatment effect were obscured by juxtaposing Exam 4 with the first control group training session. Compassionate love was measured with a scale that, although internally reliable, had few items, and was not comprehensive. The forgiveness scale was also short, did not explicitly address secular components, and registered low baseline internal reliability, suggesting caution in interpreting forgiveness effects. Finally, this study relied entirely upon paper-and-pencil self-report measures, which are vulnerable to reporting biases.

Strengths and future directions

Despite these drawbacks, this study has several strengths, including focus on a culturally adaptable spiritual-wisdom-based intervention, as well as use of a randomised design, a very high retention rate, and multiple follow-up assessments. Future studies should test replicability in larger samples, more diverse groups, and a wider set of outcome measures related to compassionate love (e.g. Lopez & Snyder, 2003; Peterson & Seligman, 2004). Now that Sprecher and Fehr's (2005) fuller compassionate love scales are available, EPP effects on them should be tested. Forgiveness should also be assessed with lengthier scales that clearly include secular dimensions. EPP effects on spiritual modelling and mindfulness, observed in other cohorts, should be assessed as potential mediators of compassionate love gains (Oman et al., 2007; Shapiro et al., 2008). Observer reports, objective behavioral measures, structured interviews, and impacts on patients' satisfaction and outcomes should also be examined. Finally, even if 19-week diminished effects were due to control group changes, attempts should be made to enhance and prolong treatment effects by a more systematic provision of post-intervention support.

Conclusions

We have reported a pioneering randomised intervention study of the impact of a social cognitive spiritual programme on compassionate love, altruistic action, empathy, and spiritually based forgiveness. Statistically significant changes were observed on a majority of outcome measures, and some changes were maintained more than 4 months after the end of training. The programme studied here relies on empirically successful and conceptually generative strategies and is usable within any major spiritual or religious tradition, or outside of all traditions. We hope these findings will offer fresh perspectives relevant to strengthening present-day healthcare systems and the people who work in them.

Notes

1. Spiritual models were assessed by Oman et al. (2007) using the Spiritual Modeling Inventory of Life Environments (SMILE), which has psychometric properties, items, and assessment strategies as described by Oman et al. (2009). Question 7 asks respondents to identify by name up to two famous spiritual models from before 1900, and two from after 1900. Jesus, the Buddha, and Moses were the pre-1900 spiritual models most commonly reported by a geographically diverse sample of US college students ($N = 1010$, Oman et al., 2009).

- 775 2. In the EPP, “putting others first” means putting the *welfare* of others ahead of one’s own preferences, often referred to as “likes and dislikes.” EPP instructional materials argue that by putting others first, practitioners may experience heightened long-term well-being through freeing themselves from excessive self-focused attention and related compulsive behaviors. Initial motivation for EPP practice typically involves healthy, understandable, and partially self-directed goals, such as improved personal well-being. Over time, if attentiveness to others’ welfare becomes a habitual and integral part of character, then self-interested motivations may fall away, even as new satisfactions may arise. Post (2003) suggests that “if an altruist retires by the fireside late at night and has some sense of meaning and fulfilment as the result of the day’s helping behaviors,” he or she can still be counted an authentic altruist “*so long as* he or she was not motivated by the sense of well-being that is retrospectively experienced” (pp. 59–60).
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- 785 3. Between Exam 1 and Exam 4, all enrolled participants were mailed periodic 1-page newsletters (seven issues over 6 months) that reminded them about upcoming assessments and provided motivational material to encourage continued participation (e.g. health tips, summaries of scientific studies, and one or two aphoristic quotes from nondenominational spiritual sources). No further information about the intervention itself was provided. A standardised statement in each issue stated that the intervention’s “core program consists of 8 spiritual tools. This newsletter contains a variety of other items we think will be useful but are not directly related to the core program.”
- 790
- 795 4. Exam 1 mean outcome levels were compared with US adult means derived from the 1998, 2002, and 2004 GSS (two forgiveness item means from Idler et al., 2003; 11 altruistic behavior and seven empathy item means from Smith, 2008, and two compassionate love items directly computed from GSS data). Study participants had higher baseline levels of compassionate love ($M = 3.89$ or almost *most days*) than US adults measured in 2002 ($M = 3.50$), about 6 months after the 2001 terrorist attacks, but slightly lower than US adults measured in 2004 ($M = 4.12$ in 2004). Participants also had similar empathic concern ($M = 21.2$, vs 20.9 in 2002/2004); somewhat lower spiritually motivated forgiveness ($M = 2.84$, vs $M = 3.24$ for US adults in 1998); and comparatively higher altruism, measured either as total *actions* per year ($M = 100.3$, $SD = 69.1$, vs $M = 64.1$ nationally), or as total *types* of action done at least once per year ($M = 7.1$ out of 11 types, $SD = 2.1$, vs $M = 6.4$, nationally, in 2002/2004).
- 800
- 805 5. Johnson scale items 1, 4, 5, 7, 8, 9, 11, 13, 14, 17, and 19 were used both here and in the 2002 and 2004 GSS (Smith, 2008), and modified versions of items 21, 22, 28, 30, 39, 40, 42, 46, and 47 were included here due to workplace relevance. Details are available from corresponding author.
- 810 6. Numerically similar and substantively unchanged effect estimates were produced by retaining all four exams but allowing for a separate treatment effect at the additional exam. However, the reduced dataset was more appropriate for analyses of statistical moderation and mediation.
- 815 7. In exploratory time-constant models, stress mediation of effects on forgiveness was clearly partial, rather than full. In models that included only Exams 1 through 3, all mediation criteria by stress of treatment effects on forgiveness were again satisfied ($p_2 < 0.05$), but the adjusted treatment effect remained significant ($p_2 = 0.01$) at 69% of its original magnitude.

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