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Compassionate love: accomplishments and challenges in an emerging scientific/spiritual research field

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Psychological qualities of central interest to religion and spirituality, including virtues such as love, are drawing increasing scientific attention. One recent large-scale research initiative funded by Fetzer Institute focused on compassionate love (CL), an other-centred form of love with recognisable analogues in all major faith traditions. We review findings and impacts from 55 peer-reviewed publications generated by 31 projects funded since 2001. We examine major findings, the role in each study of spirituality/religion, and whether the article cited previous CL literature or used CL terminology. Studies varied greatly in how they operationalised CL. Evidence supported numerous antecedents and consequences of CL. Trend analyses indicated that CL terms are increasingly cited in scientific literature. We suggest future directions for CL research, and identify challenges and opportunities likely to generalise to scientific research initiatives in other fields related to religious/spiritual qualities.

Keywords: compassionate love; compassion; love; altruism; empathy; spirituality; religion

"All other things to their destruction draw, only our love hath no decay"
– John Donne (1982, p. 18)

"Unselfish love for all people without exception is the most important point of convergence among all significant spiritualities and religions"
– Stephen G. Post (2003, p. 1)

All major spiritual and religious traditions have emphasised the importance of unselfish love and compassion, a love that "centers on the good of the other" (Underwood, 2008, p. 3). Indeed, all major traditions have revered exceptional individuals who exhibit intensely active other-oriented concern, such as Jesus or the Buddha, and have encouraged ordinary people to follow their examples. This other-centred love, which in the present report is called *compassionate love*, has not been conceptualised in identical ways across cultures and faith traditions. However, a strong case can be made that these traditions exhibit a "coherent resemblance" to each other in their shared recognition, reverence, and attempt to actively foster compassionate love (Peterson & Seligman, 2004, p. 35).

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Even leaving aside potential practical applications, which are needed urgently at all levels, the near-unanimous cross-cultural interest in compassionate love should render it a phenomenon of major scientific interest.

Surprisingly, however, a sustained scientific effort to understand compassionate love has only emerged in the past decade. In the middle years of the twentieth century, compassionate love was investigated systematically by the eminent Harvard sociologist Pitirim Sorokin (1954/2002). Sorokin surveyed the sources, conditions, and consequences of love in light of a heuristic model of five "dimensions" of love: intensity, extensiveness/breadth, duration, purity, and adequacy as gauged by objective consequences. Sorokin's successors, however, did not continue his work in this area. Nevertheless, by the late twentieth century, social scientists had given much scrutiny to several related constructs such as empathy, altruism, and forgiveness (e.g., Batson, 1991; Davis, 1994; McCullough, Pargament, & Thoresen, 2000). None of these related constructs, however, matched the conceptual richness of compassionate love as it had been investigated by Sorokin (1954/2002), or articulated in religious traditions.

By century's end, for a growing group of scientists and scholars, research on compassionate love seemed conspicuous by its absence. To these scholars, attempts to understand the full dynamics of human life without compassionate love seemed like trying to stage *Hamlet* without the Prince of Denmark. To begin redressing this gap systematically, Underwood (2002) helped organise an initial scholarly and scientific meeting at the Massachusetts Institute of Technology (MIT) in October 1999 (see Underwood, 2008). Out of this meeting emerged an edited book (Post, Underwood, Schloss, & Hurlbut, 2002) that addressed many key definitional and conceptual issues, and suggested directions for further research. Importantly, full terminological standardisation was not achieved by these scholars, or even attempted, since attempts at uniformity were felt to be premature. Thus, besides referring to compassionate love, publications catalysed by the conference also referred to "altruistic love" and "unlimited love" (Post, 2003; Post et al., 2002). The term "compassionate love" itself had recently emerged as the best "compromise phrase" in multicultural collaborative work conducted by the World Health Organization (WHO) (Underwood, 2008, p. 9).[1] Still, substantial overlap was clearly evident in the constructs employed in the ensuing scholarship.

The MIT meeting and its sequelae encouraged the John E. Fetzer Institute (Fetzer) and the John Templeton Foundation (Templeton), two independent foundations and research funders, to support research initiatives on compassionate love. Much of the resulting research was informed, directly or indirectly, by the definitions and model developed and presented at the MIT meeting by Underwood (2002, pp. 73–74). A very similar set of criteria was later reiterated, in slightly different language, by Underwood (2008, pp. 7–8). Underwood (2002, 2008) suggested that compassionate love had the following characteristics, which here I will call the *CL-2002 criteria*:

(1) *Valuing the other at a fundamental level*. "Some degree of respect for the other person is necessary . . . rather than pity . . . . To be pitied does not elevate us as human beings" (Underwood, 2008, p. 7).
(2) *Free choice for the other*. Compassionate love reflects a free choice to love, rather than being primarily instinctually driven (or, of course, something coerced).
(3) *Cognitively accurate understanding, to at least some degree, of the situation*. This includes understanding "something of the needs and feelings of the person to be loved, and what might be appropriate to truly enhance the other's well-being" (Underwood, 2008, p. 7).

(4) *Response of the heart*. "Some sort of emotional engagement and understanding [seems] to be needed to love fully in an integrated way" (Underwood, 2008, p. 8).
(5) *Openness and receptivity*. An open attitude "allows one to see opportunities for the expression of compassionate love in specific situations" (Underwood, 2002, p. 73). "Specifically religious inspiration is not a necessary component . . . [but] the definition needs to leave room for this kind of divine input or open receptive quality" (Underwood, 2008, p. 8).

So defined, compassionate love is clearly distinguishable from previously well-researched constructs such as empathy, altruism, and forgiveness (see Table 1). The phrase "compassionate love" also has a long history of usage in English (e.g., Law, 1760, p. 78), dating at least to the seventeenth century. The phrase is readily interpretable by non-researchers (Fehr & Sprecher, 2009), although it does not appear to be widely used in English-speaking popular culture.[2] These criteria also align compassionate love closely with concepts prevalent in religious and spiritual traditions, and some dictionary definitions of love.[3] As Underwood (2002) and others noted, however, the listed criteria leave considerable flexibility in how an individual researcher might operationally define and measure compassionate love in a particular study. Flexible definitions were needed because compassionate love was seen as meriting attention from a wide range of social and biological sciences, including psychology, sociology, economics, neuroscience, and

Table 1. Relation of compassionate love to related constructs.

Other construct	Comparison to compassionate love
Empathy	*Positive moral direction* Unlike empathy, which has no moral direction, compassionate love is directed to the good of the other.
Compassion	*Not limited to others who suffer* Unlike compassion, which might imply a focus limited to alleviating others' suffering, compassionate love can be directed to all, and emphasises enhancing human flourishing.
Altruism	*Unencumbered by diverse technical definitions; requires emotional component* Unlike altruism, which has diverse and sometimes conflicting technical definitions in different fields (e.g., economics, evolutionary psychology), compassionate love has one primary set of meanings; and unlike many altruism definitions, which focus only on motives or external consequences, compassionate love requires emotions.
Forgiveness	*Not limited to offenders* Unlike forgiveness, which is directed to those who have offended, compassionate love can be directed to all.
Parental love	*Not limited to children* Unlike parental love, which is directed primarily to children, compassionate love can be directed to all.
Romantic love	*No implication of sexual attraction or exclusivity* Unlike romantic love, which may be hormonally driven and typically implies sexual attraction, compassionate love does not imply sexual attraction, and can be directed to all.

Note: For further discussion, see Underwood (2008).

evolutionary biology. More broadly, it was recognised that not all CL-2002 criteria were likely to be practically relevant or feasible to include in every investigation. For example, projects based on analyses of data from large ongoing surveys (e.g., T. Smith project, described later) cannot be expected to verify the "cognitive accuracy" of participant self-reports. Thus, Fetzer, Templeton, and the MIT conference participants did not expect that every study aimed at elucidating CL would succeed in attaining every criterion.

In any new field, conceptually and methodologically perfect studies represent more of a guiding ideal than a feasible short-term objective. Thus, the emerging field of compassionate love research has sometimes been represented as a target-like diagram consisting of concentric circles (Figure 1). In such a diagram, a study that fully operationalises all distinguishing features of compassionate love, thereby ensuring that conclusions are fully specific to compassionate love, is placed within the central circle. "Pure" compassionate love could be said to be the operational focus of such a study. Studies that fail to meet all criteria, but still capture *multiple distinguishing features* of compassionate love, thereby providing substantive insight beyond previous research, are placed in the second circle. Finally, a third circle encompasses existing bodies of research on related constructs, such as empathy and altruism, that also shed considerable light about the possible properties of compassionate love.

Informed by such approaches, the Fetzer Institute circulated a public Request for Proposals (RFP) in October 2000, entitled "Scientific Research on Compassionate Love and Altruistic Love." The RFP's goals emphasised understanding and developing tools to foster compassionate love. Key ideas from the RFP have been summarised elsewhere (Table 2 in Oman, 2010a). The RFP also supplied the CL-2002 criteria through a downloadable pre-publication version of Underwood's (2002) chapter. Importantly, although religion and spirituality were mentioned as variables of special interest, the RFP did not suggest that religion or spirituality were intrinsic elements of compassionate love. The RFP's ultimate total funding was slightly more than $2.5 million. In response to this RFP, Fetzer received 235 letters of intent and 194 full proposals, from which 26 projects

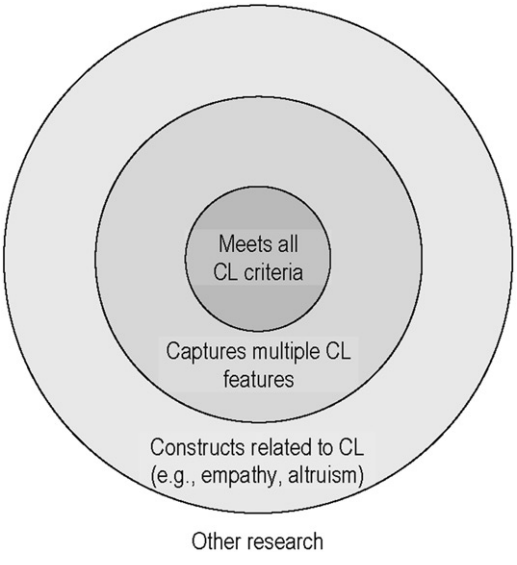

Figure 1. Compassionate love may be either partially or fully operationalised in relevant research.

Table 2. Compassionate love research projects funded in response to Fetzer's 2001 RFP, by topic category.

Principal investigator(s)	Start	Project title
I. Measurement		
1. Susan Sprecher & Beverly Fehr[a]	2001	A prototype analysis of lay conceptions of compassionate love
II. Neuroscience & physiological psychology		
2. Mario Beauregard	2005	The neural correlates of unlimited love
3. Dacher Keltner[b]	2001	Love of humanity: Concomitants and consequences
4. Jack Nitschke	2001	Brain circuitry of altruistic love
III. Evolutionary psychology & modelling		
5. Michael Macy[b]	2001	Emergent altruism: community dynamics
IV. CL in contemporary society: idiographic/qualitative		
6. Jacqueline Mattis[a]	2001	Mapping altruistic love in an urban African-American housing community
7. Jennifer Leaning	2001	People on war: qualitative data analysis
V. CL in contemporary society: quantitative/survey		
8. Eleanor Brown	2001	The impacts of religious, intellectual, and civic engagement on altruistic love and compassionate love as expressed through charitable behaviours
9. Alan Omoto	2001	Volunteerism, community, and compassionate acts among older adults
10. Sandi W. Smith & Stacy L. Smith[a]	2001	A content analysis of altruistic love on television
11. Tom Smith	2001	A national study of altruistic attitudes and behaviours
12. James Youniss	2001	Religiousness and service in adolescent development of altruism and compassion
VI. Healthcare and caregiving: observational		
13. David Graber	2001	Spirituality in the lives of compassionate clinicians working in hospitals
14. Kevin Reimer & Norman Giesbrecht	2001	Altruistic love and compassionate care in L'Arche
15. Scott Tonigan	2001	Spiritual practices and altruistic love: Two studies of alcoholics anonymous members
16. Robert Wuthnow	2001	Moral meanings of altruistic and compassionate love among recipients of caregiving
17. Sally Zierler	2001	Compassionate love within HIV-affected families: Caregiver, patient, and family well-being
VII. Healthcare: interventions		
18. Frank Keefe	2001	Loving-kindness meditation for persistent pain
19. Doug Oman	2001	Empathy and altruism in health professionals: Effects of a social cognitive spiritual training program
VIII. Attachment security		
20. Mario Mikulincer & Phillip Shaver[b]	2001	Attachment theory, compassion, and altruism

(*continued*)

Table 2. Continued.

Principal investigator(s)	Start	Project title
IX. Close relationships		
21. Vincent Jeffries	2001	Benevolent love and marriage
22. Benjamin Karney	2001	Compassionate love and social support in early marriage
23. Caryl Rusbult	2001	How close partners shape one another's selves and ideals
X. Development: Early childhood and adolescence		
24. Nancy Eisenberg, Doran French, & Sri Pidada	2004	Indonesian adolescents' caring and caring relationships: Religious involvement and socio-emotional functioning of Muslim youth in Indonesia
25. Larry Nucci & Elliot Turiel	2004	The development of morality and compassionate love in children
26. Judith Smetana	2004	Selfishness and selflessness in adolescent-parent relationships
27. Brenda Volling	2001	Compassionate love in the family: an observational study of marital support, caregiving, and prosocial sibling interaction in early childhood
28. Carolyn Zahn-Waxler	2004	The origins and development of compassionate love: biological and environmental contributions to concern for others in MZ and DZ twins
XI. Development: Adult and late adult		
29. Jack Berry	2001	Warmth-based vs. conscientiousness-based virtues, altruistic personality traits, and expressions of altruistic and compassionate love
30. Samuel Oliner	2001	Love and compassion: acts of moral exemplars
31. Paul Wink & Michelle Dillon	2001	The development, antecedents, and psychosocial implications of altruism in late adulthood

Notes: [a]Like Sprecher & Fehr's project (category I), projects by Mattis and Smith & Smith also had implications for measuring CL.
[b]Like Macy's project (category II), Keltner's and Mikulincer/Shaver's projects also concern evolutionary psychology, although the approaches are dissimilar.

were initially funded. Fetzer later funded five more compassionate love research projects, yielding 31 total projects directly shaped by Fetzer's RFP.

Meanwhile, in June 2001, also partly resulting from the MIT conference, bioethicist Stephen G. Post used funds from Templeton to found the Institute for Research on Unlimited Love (IRUL). IRUL's concept of "unlimited love" shares many features of Fetzer's "compassionate love," and IRUL contributed funds to some of Fetzer's 31 funded projects. Soon, in January 2002, IRUL sponsored its own public RFP on other-centred love that was very similar to the Fetzer RFP in most details. It resulted in 21 funded projects showing considerable thematic and methodological overlap with the Fetzer's 31 projects (Post, 2007).

These pioneering and cooperative research initiatives by Fetzer and IRUL raise many important and practical questions. What was discovered in the research? How did the

funded studies operationalise CL? Were religious and spiritual views of CL explored? Has CL emerged as a novel and coherent research field, with distinctive concepts, measures, and findings? Have CL research findings been disseminated broadly in books, magazines, and other professional and popular outlets? How can CL best be advanced as an emerging research field? Last but not least, what lessons does the Fetzer RFP hold for research initiatives examining other religious and spiritual qualities or phenomena?

These questions are all addressed in this article, and at greater length in Oman's (2010a) expanded version of this report.[4] Here, our primary focus is the 31 funded projects generated by the initial 2000 Fetzer RFP. For purposes of discussion and analysis, we have grouped projects into 11 categories, defined by nature of topic and/or design (Table 2). These projects have now yielded at least 67 publications in peer-reviewed journals, of which 55 reported findings concerning compassionate love (Table 3). Due to space limitations and other constraints, findings from the 21 projects funded in response to the 2002 IRUL RFP are outside the scope of this review. But considerable substantive overlap exists in the types of studies funded by the two RFPs (e.g., Aron et al., 2004; Ghafoori, Hierholzer, Howsepian, & Boardman, 2008; see Post, 2007). Later, I suggest that many findings from the present review are likely to generalise to the IRUL RFP projects.

Methods

Publications (journal articles, chapters, books, and others) were identified through several processes to ensure comprehensiveness and specificity (details available in Oman, 2010a). Each peer-reviewed journal article was analysed to determine whether compassionate love, hereafter sometimes abbreviated as "CL," or a construct approximating CL (see Figure 1), was given an emphasis that was high, medium, low, or nonexistent (h/m/l/-), corresponding, respectively, to (1) a primary focus, (2) a variable of major secondary interest, (3) a variable of minor interest, or (4) not included. Studies in which CL was a variable were then coded for several types of information on the overall research design, on how CL was operationalised conceptually and measured, the study population, findings, use of recognisable CL terms (e.g., "compassionate love," "altruistic love," or "unlimited love"), and citation of published literature on CL (e.g., books by Sorokin, Post et al., or Fehr et al. – see details in table notes). Journal articles were also examined for the role, if any, played by *religion/spirituality* – for example, as a central focus, versus a covariable of secondary importance.

To gauge influences beyond journal articles, lists were assembled of other known project-related publications, including books, chapters in edited books, magazine articles, and public datasets. In addition, all project investigators were queried by email about perceived effects from their CL research project.

Results

By June, 2010, 28 of the 31 funded projects had generated a total of 55 peer-reviewed journal articles that addressed CL-related constructs. These included 49 empirical studies, 5 reviews/theoretical articles, and 1 computerised simulation. Most projects ($n = 22$) had produced at least one journal article in which a CL-related construct was a primary topic of interest. Furthermore, a religious or spiritual variable was included in almost half of the published reports (24/55), most commonly as a central focus (see Table 3, "R/S" column).

Table 3. Peer-reviewed journal publications produced by Fetzer RFP projects.

No.	PI	Author list	Centrality of CL[a]	Measure/ design[b]	Subjects	CL-related construct	Finding (causal direction interpreted)[c]	R/S[d]	Cites[e]	Terms[f]
(I) Measurement										
1.	Sprecher & Fehr	Sprecher & Fehr (2005)	h	Ope + Clo	700 students	CLS (scale: CL disposition)	Unifactorial, good psychometrics	*	bu_2	✓+cal
2.	Sprecher & Fehr	Sprecher & Fehr (2006)	h	Clo	432 students	Anecdotal reports of CL events (using popular CL concept)	Give/receive CL → gains in self-esteem, feeling, self-sacrifice	–	bu_2	✓l
3.	Sprecher & Fehr	Sprecher et al. (2007)	h	Clo	180 students	Dispositional CL (CLS), plus situational CL	More mood gains from CL in high-CL responders, women	–	o	✓a
4.	Sprecher & Fehr	Fehr & Sprecher (2009)	h	Clo	663 students	Popular concept of CL	CL conforms to prototype model	–	$bu_2fu_8f_+x$	✓cl
(II) Neuroscience and psychophysiology										
5.	Beauregard	Beauregard et al. (2009)	h	Design + Clo	17 L'Arche assistants	Caregiver love state; mood ratings	CL → brain region (BA 13, BA32, etc.)	*	sp_3	ucl
6.	Keltner	Hertenstein, Keltner, App, Bulleit, & Jaskolka (2006)	m	Design	384 students (US, Spanish)	Love, sympathy	CL(sympathy, love) can be communicated by touch	–	–	al
7.	Keltner	van Kleef et al. (2008)	m	Clo	118 students	Compassion	Social power → less CL(compassion)	–	–	c
8.	Keltner	Simon-Thomas, Keltner, Sauter, Sinicropi-Yao, & Abramson (2009)	m	Clo	114 students	Compassion, love	CL is communicable by voice	–	–	c
9.	Keltner	Oveis et al. (2009)	m	Design + Clo	80 students	Compassion film + self-report	Induced CL uncorrelated w/base heart variability	–	–	c

10.	Keltner	Oveis, Horberg, & Keltner (2010)	h	Design + Clo + Beh	275 students	Compassion	CL → perceived similarity w/weak	–	p_2	ca
11.	Keltner	Rodrigues, Saslow, Garcia, John, & Keltner (2009)[g]	l	Design + Clo + Beh	192 students	Empathy	Genotype → CL	–	–	–
12.	Keltner	Goetz et al. (2010)	h	Theory + review	–	Compassion	Compassion meets criteria for emotion	–	$u_2p_2u_8f_+x$	cal
13.	Nitschke	Nitschke et al. (2004)	h	Design	6 mothers	Maternal love state; mood ratings	CL → brain region (OCF)	–	–	–
(III) Evolutionary perspectives										
14.	Macy	Centola et al. (2005)	l	Theory + Simulate	–	Nonsupport for unpopular or anti-CL norms	Isolated neighbourhoods & too few true believers risk unpopular norms	–	–	–
(IV) CL in contemporary society: qualitative										
15.	Mattis	Mattis et al. (2008)	m	Int	40 adults	Altruism (w/o a prior interest)	CL affected by many identities	–	–	a
16.	Mattis	Mattis et al. (2009)	h	Int	40 adults	Altruism (w/o a prior interest)	CL prevalent, categorisable	*	sp_2b_+	al
(V) CL in contemporary society: surveys										
17.	Brown	Brown & Ferris (2007)	h	Clo	32,336 adults	Charitable behavior & volunteering	Social capital education, religion → CL	**	–	–
18.	S. Smith & S. Smith	Smith et al. (2006)	h	Rate	1763 TV hours	Altruistic acts	CL prevalent, categorisable	–	p_2b_+	a
19.	Youniss	Kerestes et al. (2004)	h	Clo	545 HS students	Intentions to volunteer	Religion → intend future CL	**	–	–
20.	Youniss	Metz & Youniss (2005)	h	Clo	486 HS students	Volunteering; Intentions to volunteer	Mandatory service → CL	*	–	–
21.	Youniss	Reinders & Youniss (2006)	h	Clo	620 HS students	Helping; Intentions to volunteer	Service → help org. → self-perception → CL(helping) →	–	–	–

(*continued*)

Table 3. Continued.

No.	PI	Author list	Centrality of CL[a]	Measure/ design[b]	Subjects	CL-related construct	Finding (causal direction interpreted)[c]	R/S[d]	Cites[e]	Terms[f]
							intend future CL(volunteer)			
(VI) Healthcare and caregiving: observational										
22.	Graber	Graber & Mitcham (2004)	h	Int	24 clinicians (exemplars)	Increased other-concern	CL varies over day, but also trait-like	*	u_2b_+	cal
23.	Reimer & Giesbrecht	Reimer (2004)	l	Int	30 healthcare assistants	Self-concepts close to God's expectations	More experience at L'Arche → CL	**	p_2b_+	a
24.	Reimer & Giesbrecht	Reimer (2005)	l	Theory	–	Religious cognition	Can theorise that some religious rituals → CL	**	–	–
25.	Wuthnow	Wuthnow et al. (2004)[g]	h	Design	207 adults residing in community	Organisation seen as com-passionate, etc	Faith-based org. *not* → CL, except for congregations	**	–	–
(VII) Healthcare: interventions										
26.	Keefe	Carson et al. (2005)	m	Clo	61 pain patients	Forgiveness & (non-)anger	CL → less pain, & distress, mediated by less anger	–	–	–
27.	Keefe	Carson et al. (2005)	h	Design	43 pain patients	Loving-kindness meditation	CL(meditation) → less pain, (next day) less anger	–	–	l
28.	Oman	Oman et al. (2006)	l	Design	61 health prof's	CL spiritual text meditation	CL(meditation) → less stress	**	–	–
29.	Oman	Richards et al. (2006)	h	Design	12 nurses	CL spiritual text meditation	CL(meditation) → enacting CL	**	–	ca
30.	Oman	Oman et al. (2008)	l	Design+ Clo	61 health prof's	CL spiritual text meditation	CL(meditation) → self-efficacy	**	–	cal
31.	Oman	Oman et al. (2010)	h	Design+Clo +Int	61 health prof's	CL spiritual text meditation	CL(meditation) → CL(scale), for-give, empathy, altruism	**	$bu_2p_3fu_8f_+x$	✓cal

(VIII) Attachment security										
32.	Mikulincer & Shaver	Mikulincer et al. (2005)	h	Beh	1080 students	Willing to do helpful actions	Attachment security → CL	–	p_2b_+	cal
33.	Mikulincer & Shaver	Gillath et al. (2005)	h	Clo	720 students	Does volunteer work, altruist motives	Attachment security → CL	–	–	ca
34.	Mikulincer & Shaver	Mikulincer & Shaver (2005)	l	Review/ Clo	–	Compassion, altruism	Attachment security → CL	–	–	ca
35.	Mikulincer & Shaver	Noftle & Shaver (2006)	l	Clo	8423 students	Altruism	Attachment security → CL	–	–	al
(IX) Close relationships										
36.	Jeffries	Jeffries (2002)	h	Theory	–	Virtuous love	Virtuous, attractive love interact via several processes	*	s	l
37.	Jeffries	Jeffries (2006)	h	Clo+Int	49 couples+14 individuals	Benevolent love	Religion → CL CL → marital quality	**	s	l
38.	Karney	Neff & Karney (2005)	h	Design	82+169 couples	Accurate views of spouse	CL → marital stability	–	x	l
39.	Rusbult	Rusbult et al. (2005)	m	Theory/Review	–	Influence partner to attain ideal self	Michelangelo model is supported	–	–	l
40.	Rusbult	Rusbult, Finkel, & Kumashiro (2009)	m	Theory/Review	–	Influence partner to attain ideal self	Michelangelo model is supported	–	–	–
(X) Development: Early childhood and adolescence										
41.	Eisenberg, French & Pidada	French et al. (2008)	h	Clo	183 Indonesian Muslim Youth	Prosocial behavior	religiousness → CL (cross-sectionally)	**	f_+	–
42.	Eisenberg et al.	Eisenberg et al. (2009)	h	Clo	1254 Youth, Indonesian	Empathy, prosocial behavior	friend with minority → CL	**	–	–
43.	Eisenberg et al.	Sallquist et al. (2010)	h	Clo	959 Youth, Indonesian	Prosocial behavior	religiousness → CL (longitudinally)	**	f_+	–
44.	Nucci & Turiel	Nucci & Turiel (2009)[g]	m	Int	192 aged 7–17	Child/youth moral development	CL aspects grow in U-shape	–	–	–

(*continued*)

Table 3. Continued.

No.	PI	Author list	Centrality of CL[a]	Measure/ design[b]	Subjects	CL-related construct	Finding (causal direction interpreted)[c]	R/S[d]	Cites[e]	Terms[f]
45.	Smetana	Smetana et al. (2009)	h	Int	118 families	Youth moral development	Usual development↔CL	–	–	c
46.	Volling	Groenendyk & Volling (2007)	h	Clo	58 families	Child conscience	Cooperative co-parenting → CL	–	–	–
47.	Volling	Kolak & Volling (2007)	h	Clo	57 families	Love between spouses	CL → Cooperative co-parenting	–	–	l
48.	Volling	Blandon & Volling (2008)	h	Clo	58 families	Child compliance	Gentler parenting → CL	–	–	–
49.	Volling	Volling et al. (2009)	h	Clo	58 families	Child moral development	Sanctity of marriage → CL	**	f_+	l
50.	Zahn-Waxler	Knafo et al. (2008)	h	Clo	409 child twins	Empathy, prosociality	CL heritability increases with age	–	–	c
51.	Zahn-Waxler	Knafo et al. (2009)	h	Clo	122 child twins	Empathy	Emotion symptoms moderated relation of knowledge↔CL	–	–	–
(XI) Development: adulthood										
52.	Berry	Berry et al. (2005)[g]	h	Clo	29 students		CL → Forgiveness	*	–	l

						Warmth-based virtues				
53.	Oliner	Oliner (2005)	h	Design+ Clo	631 people	Forgiveness, agape love, etc	Many CL measures correlate positively	*	sbu_2p3	al
54.	Wink & Dillon	Wink & Dillon (2003)	h	Clo	181 Berkeleyan	Generativity, wisdom	Religiosity/ spirituality → CL	**	–	–
55.	Wink & Dillon	Dillon et al. (2003)	h	Clo	183 Berkeleyan	Generativity	Religiosity/ spirituality → CL	**	–	a

Note: Additional primary research reports were in book chapters for projects by Reimer & Geisbrecht (Giesbrecht, 2008) and T. Smith (Smith, 2008).

[a]CL (as operationalised) was highly central to the report (h), moderately central (m), or peripheral and of low centrality (l); this rating is independent of whether or not the *operationalisation* captures much or little of CL as a distinctive construct (Figure 1).

[b]CL-related variable was incorporated into the study by qualitative interview (Int), closed-response self-report question (Clo), Open-response self-report question (Ope), observer ratings (Rate), or design/manipulation (Design).

[c]CL-related finding, with causal direction as indicated (by arrows) by authors' primary theoretical framework. Since many study designs did not support strong causal inferences, reverse causality cannot be ruled out in many cases.

[d]Religion or spirituality are a central focus (**), or are addressed theoretically for at least three sequential sentences (*), or with a variable (*).

[e]Citations to key references in previous CL literature, coded as: s (any edition of Sorokin, 1954/2002), b (entirety of Post et al., 2002), u_2 (Underwood, 2002), p_2 (Post, 2002), b_+ (other chapters of Post et al., 2002), p_3 (Post, 2003), f (entirety of Fehr & Sprecher, 2008), u_8 (Underwood, 2008), f_+ (other chapters of Fehr & Sprecher, 2008), or x (publications from other CL projects listed in Table 2).

[f]Terminology used for CL: Indicates whether the article uses recognizable CL names in text, by meeting a usage threshold of four or more times used: "compassionate love" (✓), "altruistic love" (+), "unlimited love" or "unconditional love" (u), or related terms such as "love" (l), "compassion" (c), or "altruism" (a).

[g]Papers determined as discussing or supported by the RFP, although without explicit published acknowledgement.

CL was implemented in diverse ways, ranging from laboratory-based altruistic behaviour, to caregiver emotional states, to moral development (see Table 3, ''CL-related construct'' column). Since few if any investigations actively controlled for all 5 CL-2002 criteria, none can be unambiguously classed as an investigation of the purest form of CL, represented by the centre of the conceptual target (Figure 1; analyses not reported). For example, few studies sought to measure a ''response of the heart'' (criterion no. 4). As noted earlier, this was not unexpected, given the many obstacles to simultaneously implementing all five criteria. Most reports therefore represent investigations of a CL-related construct, rather than pure CL.

The following subsections review each project's primary CL-related findings. These findings were reported overwhelmingly in peer-reviewed journals, but also include a few book chapters (Omoto, Reimer & Giesbrecht, T. Smith, and Wuthnow projects) and three unpublished reports. Further details are provided by Oman (2010a), who also supplies suggestions for future research specific to each of the 11 topic areas.

I. *Measurement*

Sprecher and Fehr's project focused on two central tasks for an emerging research field: developing definitions and measures of the central construct, compassionate love. One report examined laypersons' conceptions and definitions of CL, and the other three reports developed and applied a CL scale. All four used college student samples (see Table 3, ''subjects'' column) and relied primarily on cross-sectional surveys.

Fehr and Sprecher (2009) focused on conceptualising and defining CL, analysing how the phrase ''compassionate love'' is understood in North American culture. In the first of six substudies, participants were told that social scientists have studied romantic love, but ''other kinds of love, such as compassionate love, have received very little attention'' (p. 346). When asked to list ''the features or characteristics of compassionate love'' (p. 346), participants provided an average of 5.32 features, a quantity ''comparable to . . . similar studies'' (p. 346).

The centrality or ''prototypicality'' for CL of the most commonly reported features were rated by participants in a second substudy. Four additional substudies, some including lab-based tests of subconscious processes, confirmed that participants' understandings of CL conformed to the model of a ''prototype concept . . . organized around their clearest cases or best examples'' rather than a construct based on a ''classical definition . . . in terms of a set of individually necessary and jointly sufficient criterial attributes'' (p. 344). The most highly prototypical features included trust, honesty, caring, understanding, support, concern for the other's well-being, and unconditionality. The investigators noted that the defining features of CL in many experts' definitions of CL are regarded as ''peripheral'' by laypeople; ''Conversely, the features that ordinary people regard as central . . . are largely absent from experts' definitions'' (p. 361). The investigators suggested that this might be because scientists often need to ''highlight what is unique about each kind of love'' whereas ''laypeople . . . are free to focus strictly on the meaning of the concept without bearing the additional burden of having to demonstrate the discriminant validity of their conceptualization'' (p. 361). They suggested that ''lay conceptions need not dictate theorists' conceptualizations . . . But . . . scientists must be cognizant that [their] technical concept . . . differs from the meaning of compassionate love held by ordinary people'' (p. 361).

Of these investigators' three other reports, Sprecher and Fehr (2005) was foundational. It supplied psychometrics and scale wording for the self-reported 21-item Compassionate Love Scale (CLS). The CLS assesses a respondent's *disposition* (trait-like stable tendency) to engage in CL towards a particular target. Sprecher and Fehr's (2005) initial report examined three alternative CLS versions for assessing CL: (1) towards "close others," such as, family or friends; (2) towards people in general, called the "stranger-humanity" version; or (3) towards a "specific close other," such as a spouse (each item includes the target's name). Items are similarly worded across versions – for example, each version has an item beginning with "I spend a lot of time concerned about the well-being of . . . ." but concluding with different words in different versions (e.g., " . . . those people close to me," " . . . humankind," or " . . . [insert name]"). Participants respond on 7-point scales from *not at all true of me* to *very true of me*. The phrase "compassionate love" is used in only one CLS item. Pilot studies confirmed that the three CLS versions each had a unifactorial structure and good internal reliability ($\alpha \geq .95$). They also supported convergent and discriminant validity, yielding evidence that the different versions correlated in expected ways with each other and with other constructs, such as empathy, helpfulness, social support, and religiosity.

Sprecher and Fehr (2006) examined CL as an *event*, rather than as a disposition. Participants were asked to recall and narrate *particular instances* of experiencing "compassionate (or altruistic) love" (p. 231). They then rated several features of these CL experiences, such as intensity, typicality of CL, and perceived outcomes. Findings showed that compared to giving CL, incidents of receiving CL were associated with greater self-esteem, feeling better, and greater future self-sacrifice, perhaps owing to "sacrifices . . . later made [in] fulfilling the norm of reciprocity" (p. 237). And compared to CL for strangers or non-close others, incidents of CL with close others were viewed as more intense, more typical of CL, and were precursors of larger mood enhancements and greater increases in closeness to the other person. A question left open was the degree to which participants' *narrative descriptions* of their CL experiences reflected understandings that conformed adequately to scientific definitions of CL.

Finally, Sprecher, Fehr, and Zimmerman (2007) examined links between positive mood and CL. Besides administering the CLS, they assessed situational CL through hypothetical responses to eight imagined experiences of giving or receiving CL (e.g., "You take care of your close friend when he or she is sick," p. 546). Findings indicated that women as well as individuals higher in dispositional CL expected greater mood gains than others from both giving and receiving CL.

Together, these studies demonstrate viable strategies for measuring both dispositional CL and specific instances of CL. Furthermore, because of their minimal reliance on the phrase "compassionate love," both the CLS measure and the eight imagined CLS experiences could in principle be translated into other languages besides English, and used in cross-cultural studies.

II. *Neuroscience and physiological psychology*

Of three physiological projects, those by Nitschke and Beauregard both used functional magnetic resonance images (fMRI) to examine participants in a target condition aimed to elicit CL, versus an otherwise similar control condition. Nitschke's project examined six first-time mothers as they were shown pictures of their own 3—5-month-old infant (target condition), and another unfamiliar infant (control condition, Nitschke et al., 2004).

Mood self-reports supported the assumption that mothers would experience stronger feelings of CL in response to their own infant. When viewing their own versus unfamiliar infants, mothers showed greater activation of their orbitofrontal cortex (OFC), a finding "consistent with the proposed role of the OFC in decoding the affective value of a stimulus" (p. 589). Analyses did not reveal whether OFC elevation is best attributed to *other-focused* (e.g., "motherly/nurturing") or to gratification-oriented (e.g., "happy") emotional changes.

Beauregard's project provided more specificity by examining 17 "assistants" from L'Arche communities,

> places where those with intellectual disabilities, called core members, and those who share life with them, called assistants, live together .... One of the most important criteria to become an assistant is the capacity to love unconditionally (Beauregard, Courtemanche, Paquette, & St-Pierre, 2009, p. 94).

In the control condition, participants were instructed to merely view pictures of individuals with disabilities, but in the target condition they viewed pictures while cultivating "unconditional love" (L'Arche culture defines this term similarly to Post, 2003). Results showed unconditional love activated a "distinct neural network" that "includes brain regions not implicated in romantic and maternal love, such as BA 13 of the middle insula and the rostro-dorsal ACC (BA 32)" (p. 97).

Keltner's project examined the physiological psychology of compassion, exploring several measures ranging from heart rate variability to facial and voice recognition. In an important review in *Psychological Bulletin*, Goetz, Keltner, and Simon-Thomas (2010) synthesised many of their findings and put them in a broader theoretical context. Noting that "despite pervasive theoretical claims and numerous studies ... compassion ... is largely absent from traditional emotion taxonomies and research," they defined compassion as "the feeling that arises in witnessing another's suffering and that motivates a subsequent desire to help" (p. 351). They mobilised several lines of empirical evidence and evolutionary reasoning to argue that compassion is a distinct emotion, rather than only the vicarious experience of another's suffering, or a variant of another emotion such as love or sadness. They concluded that compassion is associated with distinct processes of appraisal (e.g., deservingness, costs, resources to help), signalling (e.g., voice, posture), and experience (e.g., heart-rate deceleration, other-focused attention). They argued their findings are relevant for future research on altruism, morality, and human evolution.

Other empirical reports generated by Keltner's project are summarised in Table 3. Findings showed that several emotions, including love and sympathy, can be distinguished with good reliability by touch alone, or through the voice alone; that baseline heart rate variability is unrelated to self-reported elevation of compassion in response to a film; that different oxytocin receptor genes are associated with differences in self-reported and behavioural empathy; that individuals with greater social power experience less compassion, perhaps because of less desire to affiliate; and that experiences of compassion are associated with increased perceived self-other similarity, particularly with weak or vulnerable others.

III. *Evolutionary psychology and modelling*

Macy's project examined the propagation of "self-reinforcing norms" in which "agents must decide whether to comply with and enforce a norm that is supported by a few fanatics and opposed by the vast majority" (Centola, Willer, & Macy, 2005, p. 1009).

Within the RFP, this project was unique in relying upon computer-based simulations. The simulations

> focus on how simple and predictable local interactions generate familiar but often enigmatic global patterns, such as cascading enforcement of unpopular norms . . . [and may provide] some clues about the dynamics to look for when we try to model the natural world empirically (p. 1015).

Findings clarified conditions under which highly unpopular norms can emerge locally and then spread. Conditions for emergence included poor interconnection within social networks, and – somewhat counter-intuitively – when sufficiently *few* true-believers maintain motivation to enforce their belief on others. Importantly, these findings contradict "the conventional wisdom among sociologists [that] norms are enforced because they are useful, either to society at large (in functionalist accounts) or to those who enforce them (in choice theory)" (p. 1035). Such findings may help clarify how norms or conditions that foster or impede CL can propagate within populations.

IV. *CL in contemporary society: idiographic/qualitative*

Two projects emphasised qualitative interview methods for investigating CL in contemporary society. Together, they demonstrate how understanding of CL in society can be clarified and enriched by qualitative approaches.

Mattis' project investigated motivators of "altruism" among residents and visitors in a predominantly African-American low-income housing project in New York City (Mattis et al., 2009). Acts of CL (i.e., "altruism") were defined as actions that are "(1) voluntary, (2) undertaken without an a priori interest in receiving internal or external rewards, and (3) intended to enhance the welfare of others" (p. 72). Participants were asked about occasions when they or others in the community "went out of your way to help someone who is not related to you" (p. 75). All but one of the interviewees described altruistic actions. Content analyses indicated that participants attributed acts of CL (altruism) to an interplay between 14 motives, which the researchers ordered into four overarching categories: (1) needs-centred motives, (2) norm-based motives deriving from religious/spiritual ideology, relationships, and personal factors, (3) abstract motives (e.g., humanism), and (4) sociopolitical factors. Mattis' second report discussed further theoretical implications of these findings on altruism (CL), emphasising that people are motivated by multiple and sometimes overlapping social identities (Mattis et al., 2008).

Leaning's project examined acts of compassion in war zones among ordinary victims of war, rather than the "heroic altruism" that is often a focus of writing on altruism in war (Briton & Leaning, 2002, p. 3).[5] Secondary analyses were performed on interview data from people from 12 war-torn countries, from all walks of life. Findings confirmed that many individuals had experienced compassion during wartime. The most common contributing factors included affiliative ties (such as being neighbours, refugees, or religious allies), as well as self-efficacy, a desire for reciprocity, and recapturing one's moral identity.

V. *CL in contemporary society: quantitative/survey*

Five projects used quantitative survey methods to examine CL in contemporary society. Except for one project about television, most projects operationalised CL primarily as individuals giving their time or resources to benefit others in their community.

These projects identify various societal sources of CL, and show that CL-related attitudes and behaviours are widespread but not uniformly distributed in US society.

T. Smith's project embedded CL-related measures (empathy and altruism) in the 2002 and 2004 General Social Survey (GSS), a biannual, nationally representative survey of US adults. Raw GSS data are publicly available and used widely by US social scientists and their students. Smith (2008) reported rates, trends, and correlates of empathic concern, altruistic values, altruistic love, and altruistic behaviours ($n = 2695$ US adults). These measures mostly correlated with each other, and some increased significantly from 2002 to 2004. Seven literature-based hypotheses received mixed support. Among the more robust correlates of greater empathy and altruism were belonging to groups (i.e., voluntary associations), believing that one should help friends, and active involvement with religion.

Youniss' project produced three reports about factors contributing to volunteering and civic engagement among high school students. Reinders and Youniss (2006) found that service involving direct interaction with people in need predicted judgements by students that they had made contributions to the sponsoring organisation. Causal analyses suggested that such judgements led to altered self-awareness, which in turn led to greater helping behaviour towards strangers, and higher interest in civic engagement. Metz and Youniss (2005) found that community service, even when mandatory, appeared to foster civic engagement among initially less engaged students. Finally, Kerestes, Youniss, and Metz (2004) found that religious/spiritual views predicted increasing intentions over time to volunteer, and to become civically engaged.

Omoto's project constructed a four-item measure of perceptions that volunteer work is strongly linked to compassionate love (e.g., "to me, volunteering is an expression of love," Omoto, Malsch, & Barraza, 2008, p. 265). Among 228 older adults, this perception predicted volunteering in both religious and nonreligious contexts, and was strongly correlated with other-focused motives for volunteering ($r = 0.74$).

Brown's project sought predictors of CL, operationalised as individual volunteering and charitable giving. Findings showed that social capital (social networks and norms of trust and reciprocity), human capital (education), and religious involvement predicted various facets of giving and volunteering. When levels of social capital were controlled, the direct influences of education and religiosity were reduced. Such reductions could occur if social capital is the more fundamental cause, the authors noted, but might also take place if religion and education foster giving in part *through* fostering social networks and norms (Brown & Ferris, 2007).

Finally, the project by Sandi W. Smith and Stacy L. Smith examined CL in television. Smith et al. (2006) analysed altruistic behaviour depicted in a representative sample of television content from 18 different channels and five genres (drama, comedy, movie, reality, and for children). Altruism was defined as "a voluntary act of helping or sharing that is intended to benefit others beyond simple sociability or duties associated with role" (p. 711). Findings showed that 73% of programs featured instances of altruistic behaviour, at a rate of 2.92 incidents per hour. Across all programs, altruistic actions were most likely to be directed to friends (32%), strangers (20%), or family (14%). Incidents of altruistic action were more often rewarded (31%) than punished (14%). Many produced secondary benefits for others beyond the intended recipient (28%). Only 41% of reality programs showed instances of altruistic behaviour, much less commonly than in children's programs (78%), comedies (86%), dramas (90%), or movies (93%).

VI. *Healthcare and caregiving: observational*

Five projects used observational methods to investigate healthcare and caregiving. Two emphasised medical settings (Graber and Zierler), two examined broader types of social services (Wuthnow, plus Reimer & Giesbrecht), and one investigated self-help groups (Tonigan).

Graber's project interviewed hospital clinicians identified by administrators as exemplary in compassion and caring (physicians, nurses, therapists, and others). Graber and Mitcham (2004) developed a typology of four levels of clinician/patient interactions: (1) impersonal/practical, (2) personal/social, (3) personal/feeling, and (4) transcendent. All but the lowest level involve some altruism. Higher levels involve increasing concern for the other (altruism) and decreasing concern for the self. "Clinicians may operate on more than 1 level within a single day, but will generally have a specific level where they most often relate to patients" (p. 91), and "the expression of compassion or empathy appears to sustain and support these clinicians, rather than tiring or weakening them" (p. 92).

Wuthnow's project used mixed methods to examine caregiver motives and recipient experiences in human service organisations in the Lehigh Valley, Pennsylvania. Wuthnow, Hackett, and Hsu (2004) found few differences in perceived trustworthiness and effectiveness of faith-based organisations (FBOs) versus non-sectarian organisations (NSOs), after adjusting for client characteristics. One possible explanation is that the norm is for FBOs and NSOs to adopt similar professional styles of service delivery that are "largely indistinguishable" (p. 15). However, other findings showed that people who had sought assistance from religious *congregations* tended to have higher overall trust of caregivers, perhaps because of their distinctive norms and provision of informal assistance. Wuthnow's (2004) book describes additional findings from qualitative interviews with both recipients and service providers, offering an extended analysis of how the concept of unlimited love applies to the activities of service organisations. Except for the distinctive congregational setting, professional caregivers and service providers tend to view "serving people who are in need [as] an act of kindness or compassion, which makes it something like love, even though love itself is not a common way of describing service activities" (p. 268).

Giesbrecht and Reimer's project, like Beauregard's (see Topic II), focused on the L'Arche community. Giesbrecht (2008) used self-report questionnaires to investigate caregivers at L'Arche (the "assistants," $n = 364$), and at Community Living ($n = 207$), another organisation providing services to developmentally disabled adults. L'Arche culture encourages an "interdependent" ethos, whereas Community Living is organised around a contrasting ethos of "independence." CL was operationalised as a 10-item self-report scale about one's capacities for giving love (e.g., "To what extent are you able to feel love and compassion for others"). For both groups of caregivers, structural equation models suggested that CL is fostered by relational spirituality and interdependent self-construal, and that CL in turn fosters empathic concern, empathic perspective-taking, and caregiving.

A second project report by Reimer (2004) found that experienced L'Arche assistants were more likely than novices to feel that they were meeting God's expectations. Finally, Reimer's (2005) report was theoretical rather than empirical, arguing that theories of distributed cognition may clarify the functioning of religious rituals in transmitting practical and theological knowledge about CL and other religiously vital topics.

In unpublished work, Zierler (2006) found statistically significant associations between CL (operationalised as a three-item self-report scale) and higher CD4 counts among

HIV-infected individuals. Similarly, Tonigan (2004) investigated CL in Alcoholics Anonymous (AA), operationalised as emotional empathy. Contrary to expectations, spirituality failed to mediate the relationship between AA commitment and CL. However, post-hoc analyses suggested that spirituality predicted helping behaviours seven years later, suggesting possible "mechanisms of change (and effects) associated with spiritual development" (p. 6).

VII. *Healthcare and caregiving: interventions*

Two meditation-based healthcare intervention projects demonstrated that CL can be increased in real-world settings. In each project, CL was operationalised as the treatment condition (versus randomised controls). Each intervention occurred over an eight-week period, relying upon a form of meditation with a focus believed to induce CL. Each project also included outcome measures of CL-related constructs.

Oman's randomised trial involved healthcare professionals. They were taught Passage Meditation (PM), a method involving concentration on a memorised inspirational text, such as the Prayer of Saint Francis ("... where there is hatred, let me sow love..."), the 23rd Psalm, the Buddha's Discourse on Good Will, or other CL-infused passages drawn from all major spiritual wisdom traditions. PM requires no special beliefs, and can be practiced within any major faith tradition, or outside of all traditions. Findings showed favourable and statistically significant PM treatment effects on CL ($d = 0.49$), as measured by Underwood's (2002) brief two-item scale. Benefits largely persisted at five months post-treatment. In comparison to wait-listed controls, favourable PM treatment effects were also observed on altruistic actions ($d = 0.33$), empathic perspective-taking ($d = 0.42$), forgiveness ($d = 0.61$), reduced stress ($d = -0.80$), and increased caregiving self-efficacy ($d = 0.40$) (Oman, Hedberg, & Thoresen, 2006; Oman, Richards, Hedberg, & Thoresen, 2008; Oman, Thoresen, & Hedberg, 2010).

Oman's further analyses showed that CL gains were fully mediated by adherence to PM practices. Perceived stress reductions also partially mediated (explained) how learning PM led to gains on CL and some CL-related constructs. CL gains, in turn, partially mediated gains in caregiving self-efficacy, assessed as confidence in "various facets of relating well with patients and coworkers, and dealing with ultimate/spiritual concerns" (Oman et al., 2010, p. 139). These quantitative findings were corroborated in qualitative interviews of PM-trained nurses (Richards, Oman, Hedberg, Thoresen, & Bowden, 2006). Nurses described how enacting altruistic and compassionate values was "made more achievable through engagement with the PM practices... allowing for greater expressions of love," with some feeling "an increased ability to experience compassion and empathy... in caring occasions" (pp. 238, 237).

Keefe's randomised trial involved a loving-kindness meditation (LKM) intervention (Carson, Keefe, Lynch et al., 2005). At its outset, LKM elicits feelings of love for a close other (e.g., family member), and which are then progressively directed over several weeks towards the self, towards a neutral person, towards a previously difficult hurtful person, and finally towards all living beings. At post-test and three-month follow-up, no changes were observed in the usual care control group, but the LKM treatment group showed significant improvements on several measures of pain and psychological distress, and marginal reductions in anger. Daily diary measures of LKM practice time on a given day were significantly related to lower pain that day, and lower anger the next day. A separate cross-sectional study of low back pain patients reported inverse associations of

forgiveness-related variables with pain, anger, and psychological distress. State anger largely mediated the association between forgiveness and psychological distress, and also mediated some associations between forgiveness and pain (Carson, Keefe, Goli et al., 2005).

VIII. *Attachment security*

Mikulincer and Shaver's project focused on attachment processes as a foundation for CL. According to attachment theory, evolution equipped human beings with innate attachment and caregiving behavioural systems. Compassionate behaviour is seen as resulting from the caregiving system, which functions optimally when it is not inhibited by the attachment system. Compared to insecurely attached individuals, those with secure social attachments should find it easier to perceive and compassionately respond to other people's suffering.

Consistent with theory, Mikulincer, Shaver, Gillath, and Nitzberg (2005) found that US and Israeli participants induced (''primed'') to be aware of a security-inducing personal attachment figure showed greater willingness in the laboratory to perform various compassionate actions, whether or not they were aware of the security induction. A second report showed that attachment styles also predicted real-world volunteering in the United States, Israel, and the Netherlands (Gillath et al., 2005). Avoidantly insecure attachment styles correlated with less volunteering and less altruistic and motives for volunteering. Even after adjusting for attachment style, altruistic motives for volunteering predicted less loneliness and fewer personal problems. A third study found that avoidant attachment was inversely related to altruism as a personality trait (Noftle & Shaver, 2006).

IX. *Close relationships*

Three projects on close relationships all examined marriages or intimate partnerships, most often using samples of couples. CL is a common occurrence in intimate partnerships, but is often mingled with sexual attraction and other self-orientation emotions. Close relationships therefore represent a rich but challenging setting for studying CL.[6]

Jeffries (2002) drew on symbolic interactionism and Thomas Aquinas' virtue ethics to construct a theory of ''virtuous love,'' understood as ''the dimension of love that entails the intention to benefit the other'' (p. 45). Virtuous love is viewed as dynamically interacting with ''attractive love'' to foster high-quality, high-stability marriages. Jeffries (2006) applied this theory in a study of enduring marriages (25 or more years), finding that a five-item self-report scale of virtuous love correlated positively with marital quality and several indicators of religious involvement. Qualitative interviews supported the probable causal nature of these relations, revealing that religiously active subjects drew upon religious frames of reference in several ways that contributed to overall quality and stability of marriage.

Karney's project examined the value for newlyweds of accurate *specific* understanding of one's spouse. Newlyweds tend to rate their spouses uniformly highly on global qualities (e.g., ''my partner is the greatest''), but vary in ratings of specific qualities (e.g., ''my partner is a good cook''). This study could thus be viewed as an investigation of the importance of CL's cognitive accuracy component (CL-2002, no. 3). Indeed, several beneficial outcomes, including lower rates of divorce, were associated with higher cognitive

accuracy as measured by stronger correlations of self-ratings with partner-ratings on various specific personal qualities (Neff & Karney, 2005).

Rusbult's project concerned ways that close relationship partners can influence an individual's movement towards his or her *own* ideal self, understood as "the constellation of dispositions, motives, and behavioural tendencies an individual ideally wishes to acquire" (Rusbult et al., 2005, p. 377). For many, CL may be an ideal. Consistent with Rusbult's "Michelangelo" model, considerable evidence indicates that perceptual or behavioural affirmation by a partner, either conscious or unconscious, supports progress in realising one's ideal self (Rusbult et al., 2005).[7]

X. *Development: early childhood and adolescence*

Five projects focused on the childhood development of CL among toddlers (Volling, Zahn-Waxler) and adolescents (Eisenberg et al., Smetana, Nucci & Turiel). Zahn-Waxler's project used twins to study genetic factors related to CL, operationalised primarily as empathy and prosocial behaviour. Knafo, Zahn-Waxler, Van Hulle, Robinson, and Rhee (2008) conducted observational assessments of pairs of monozygotic and dizygotic twins at ages 14, 20, 24, and 36 months. Empathy and prosocial behaviour ratings were each stable individual characteristics (i.e., correlated within individuals across time), with a heritability that increased at older ages. Moderate heritability of empathic concern was also found among three-year-old twins (Knafo et al., 2009). Greater affective knowledge (e.g., ability to read expressions) predicted greater empathy among twins with few mother-rated emotional symptoms, but the reverse relation held among children with many emotional symptoms.

Volling's project examined two-parent families with small children, with the youngest initially about two years old. Three reports examined predictors of the child's CL-related outcomes, primarily child conscience and prosocial behaviour (see Table 3). First, cooperative co-parenting behaviours were found to predict parent-reported child conscience development. Second, gentler parental guidance and control predicted higher levels of observer-rated child compliance. Third, greater perceived sanctity of marriage predicted more positive/empathy-based socialisation methods, which in turn predicted higher child moral development. A fourth study reported that greater love and support between spouses predicted more cooperative co-parenting behaviours.

Of the three adolescent-focused projects, two examined CL-related features of moral development, operationalised as responses to hypothetical situations. Smetana's project investigated hypothetical reasoning about dilemmas between helping a family member versus satisfying a personal desire. When reasoning about fictitious characters in the *same* familial role as themselves (i.e., child or parent), adolescents and parents each emphasised concern for others more than role responsibilities, conventionality, fairness, or pragmatism (Smetana et al., 2009). However, when justifying the obligation of *others* to help a hypothetical actor in the same familial role as the respondent, role-responsibilities were emphasised.

Nucci's project examined the relationship of CL to moral development in children aged seven to 17 years who were interviewed about how one should morally respond in several situations of varying complexity (Nucci & Turiel, 2009). Contrary to earlier conventional wisdom, some aspects of moral development showed a curvilinear pattern of emergence. The youngest and oldest age groups (8–9 and 16–17 years old) were most likely to recognise an obligation to help an injured person despite personal inconvenience, and to

refrain from taking advantage of another person who had unknowingly dropped a valuable object.

Finally, Eisenberg's project examined CL as empathy and prosocial behaviour among Indonesian adolescents. Among minority group youths, a close friendship with a majority-group youth was associated with higher prosocial behaviour and empathy, even after controlling for initial peer and socioeconomic status (Eisenberg et al., 2009). Among Muslim youth, religiousness predicted prosocial behaviour both cross-sectionally and over time (French, Eisenberg, Vaughan, Purwono, & Suryanti, 2008). "These associations . . . support (but do not prove) the notion that religious institutions foster other-oriented responding" (Sallquist, Eisenberg, French, Purwono, & Suryanti, 2010, p. 711).

XI. *Development: adult*

Three projects investigated psychosocial development of adults, focusing on CL-related constructs such as forgiveness, apology, "warmth-based" virtues, and generativity (giving to the next generation). Berry's project compared the levels of forgiveness associated with valuing nine "warmth-based virtues [such as] forgiveness, compassion, [and] love" versus valuing nine "conscientiousness-based virtues [such as] justice, self-control, . . . patience" (Berry, Worthington, Wade, van Oyen Witvliet, & Kiefer, 2005, p. 149). Only the valuation of warmth-based virtues predicted forgiveness of a real-life perpetrator of a crime that had victimised the participant or a relative or friend.

Oliner (2005) focused on apology and forgiveness, reviewing many recent instances of prominent or inter-group apology or forgiveness. He also analysed a survey of clergy, college students, moral exemplars, and other individuals. Findings showed many positive and statistically significant correlations between a variety of CL-related measures, including forgiveness, agape love, concern for restorative justice, the importance of apologies, and spirituality and religiosity.

Finally, Wink and Dillon's project used longitudinal data on older adults to examine relations of spirituality and religion to CL, operationalised as generativity. They found that religion and spirituality both predicted facets of generativity and wisdom. Religiousness better predicted facets of generativity corresponding to "participation in a mutual, interpersonal reality" ("communal" facets) whereas spirituality better predicted "engagement in creative and knowledge-building life tasks" ("agentic" facets) (Wink & Dillon, 2003, p. 922). These findings "should help dispel concern that spirituality necessarily implies indifference toward the welfare of others" (Dillon, Wink, & Fay, 2003, p. 441).

Other publications and impacts

Peer-reviewed journal articles are a scientific necessity and benchmark, but do not always reach a wide audience or offer clear exposition. Our review revealed that, far from being restricted to peer-reviewed journal publications, CL findings have been discussed in many other types of publications. These include chapters in edited books, authored books, and magazine articles.

Perhaps most notable are RFP-related chapters appearing in *The Science of Compassionate Love* (*The SCL*; Fehr, Sprecher, & Underwood, 2008). *The SCL* contains 10 RFP-related chapters, representing seven of the 11 topic categories. Most chapters contextualise their presentation of research findings within CL as an emerging field.

The SCL's contribution to field development is suggested by four favourable reviews that have now appeared. For example, in *PsyCritiques*, Henry (2009, n.p.) stated that the editors

> have not only provided a seminal contribution to compassionate love-related literature but have also proposed a meaningful redirection of related concepts to a focus on their adopted conception of compassionate love. The extent to which related fields of scientific research embrace their impressive proposition will depend upon the subsequent refinement of their model as well as the cohesiveness of supporting research.

We also identified 25 RFP-related chapters that appeared outside of *The SCL*. Most cited corresponding peer-reviewed CL articles. However, few if any of these chapters were devoted primarily to RFP-related research, and readers were generally not alerted to the existence of CL as an emerging research field. Rather, RFP-funded CL research findings were placed into a substantive context with relation to a preexisting research field or topic, such as adolescent development, community service, or forgiveness.

In addition, we identified seven authored books, four magazine articles, and one dissertation that discussed RFP-related research. Books were generated from several types of projects – quantitatively-oriented, qualitatively-oriented, and mixed-method. Three articles appeared in *Greater Good*, a US-based magazine that reaches an occupationally diverse readership, has its articles widely reprinted, and is intended to serve as a bridge between social scientists and the wider society.

CL literature is also being cited by noninvolved authors. Most prominently, Berscheid (2010) discussed CL research in the *Annual Review of Psychology,* where two full pages were devoted to highlighting CL as one of four key dimensions of love. Sprecher and Fehr's (2005) *CLS* was cited, and Berscheid's final sentence recommended future studies of long-term family relationships and friendships, for through them ''one can expect the preeminent role of Compassionate Love in enduring relationships, long overlooked by love scholars in their focus on Romantic Love and short-term relationships, to be revealed'' (p. 21).

The CLS was also cited in *Pastoral Psychology* by Hwang, Plante, and Lackey's (2008) publication of a short (5-item) psychometrically strong version of the *CLS* stranger-humanity scale. They argue their brief scale ''is of ideal use for educational and religious institutions looking to examine how their programs and activities might impact the compassion of their members'' (pp. 425–426).

More broadly, searches in professional databases show that citations in the *Annual Review* and *Pastoral Psychology* are part of a larger trend towards increasing use of the phrase ''compassionate love'' in professional literature. Table 4 displays how citations in PsycINFO titles and abstracts have grown from only two for the entire twentieth century, to approximately three to five publications per year beginning in 2007 (2008 was an exceptional year due to the appearance of the *SCL*). Citations in references are also increasing. While not all of this can be directly attributed to the RFP, it seems plausible to attribute much of this growth to the combined influence of the formal publications, conference presentations, and informal networking and discussion catalysed by the RFP.

Finally, information about RFP impacts was solicited in email queries to the RFP lead investigators. Most reported additional RFP influences, which included catalysing at least four conferences, fostering many new professional collaborations, generating additional funding support for CL research, creating a publicly used dataset, incorporating CL into college-level teaching, catalysing university/community collaborations to encourage CL, and providing impetus to a new professional network on issues related to compassionate

Table 4. Use of the explicit phrase "compassionate love" in various sources, by year.

Source of use	≤2001	2002	2003	2004	2005	2006	2007	2008[a]	2009	2010[b]	All
PsycINFO: CL in references	2	3	5	2	8	10	8	26	14	10	88
PsycINFO: CL in title or abstract											
• Any listed document	2	1	–	–	2	2	3	19[a]	5	5	39
• Peer-reviewed journal	1	–	–	–	2	1	1	1	2	3	11[c]
• Book chapter	–	1	–	–	–	1	1	16[a]	–	1	20
• Book	1	–	–	–	–	–	–	1	–	1	3
• Book reviews	–	–	–	–	–	–	–	–	2	1	3[c]
• Dissertation	–	–	–	–	–	–	1	1	2	–	4
Peer-reviewed journal-articles by CL projects											
• Articles with CL in text[d]	–	–	–	–	1	1	1	–	1	1	5
• All project articles	–	1	2	5	13	8	4	6	12	3	55
• Percent with CL in text[d]	–	–	–	–	8	13	25	–	8	33	9

[a]In 2008, 15 of the book chapters were contained in Fehr et al. (2008).
[b]Search conducted on 2 June 2010 (terms: ti = compassionate love or ab = compassionate love).
[c]Of the book reviews, two were also counted among the 11 peer-reviewed journal articles.
[d]Articles in which CL appears four or more times (see Table 3).

love and social solidarity (Jeffries et al., 2006). One researcher, whose reports appeared in very influential journals, stated that the Fetzer grant "funded and inspired all of our compassion work" (Keltner). Another, with similar high-profile publications, stated that

> The grant had a huge effect on our decision to look at prosocial and antisocial behavior and at the effects of "security priming" on these kinds of behavior . . . I wouldn't have been involved to anything like the same degree in issues of prosocial motives, emotions, and behavior if it hadn't been for the Fetzer grant.

Discussion

Major findings and patterns

This review examined 55 peer-reviewed papers directly supported by the Compassionate Love research initiative, noting additional dissemination of RFP-related findings in books, chapters, and other publications. As expected, these projects varied widely in the manner and fullness of operationalising CL (Figure 1). At one extreme, for example, a few primary reports focused on constructs very close to the centrally "targeted" pure CL-2002 definition of compassionate love (Figure 1) – for example, reports by Beauregard, Graber, Jeffries, Keefe, Mattis, and Oliner. Measurement and definitional work by Sprecher and Fehr is also very central to identifying and clarifying the nature of CL.

A second group of projects advanced understanding of CL by investigating closely related constructs that support multiple CL features (Figure 1, second circle). Examples include many projects focused on compassion, altruism, moral development, spiritual practices or growth, parental love, spousal love, prosocial behaviour, generativity, virtue, empathy, and volunteering (see Table 4). Finally, a third group of projects explored particular components of CL, or situational dynamics that may condition the appearance or maintenance of CL (e.g., Karney, Macy, Rusbult). The inherent challenges of the CL construct suggest that all of these three approaches may be necessary.

Together, these projects' findings represent initial confirmation that compassionate love is present in varying levels in all sectors of society, can be measured, appears to have distinctive neural correlates, has intelligible interpretations of its evolutionary and developmental history, is fostered by specific religious and spiritual practices as well as a variety of other sociocultural factors, and can be cultivated through nonsectarian laboratory-based and real-world interventions.

Empirical support – varying in strength from suggestive to compelling – was found for a range of theorised antecedents and consequences of CL (see Table 3, column on "Finding"):

- Antecedents supported: Genotype, attachment security, social capital, education, mandatory and non-mandatory youth community service, altered self-perception/awareness, youth friendships with minorities, religious involvement, religious congregations, religious rituals, spirituality, spiritually focused meditation, sanctity of marriage, cooperative co-parenting, caregiving experience (L'Arche), and lower social power;
- Consequences supported: Self-esteem, feeling good, reduced pain, reduced distress, future self-sacrifice, perceived similarity with the needy, caregiving self-efficacy, specific brain region activation, awareness of CL via touch or voice, marital quality, forgiveness, empathy, altruism, cooperative co-parenting, gentler parenting.

Findings about religion and spirituality are of special interest in view of the perennial religious interest in compassionate love. Happily, as noted earlier, almost half of the published reports incorporated a religious or spiritual variable, suggesting substantial collective awareness of the relevance of religion/spirituality to CL. Findings about religion/spiritual factors included:

- Both religion and spirituality predict generativity and wisdom, two qualities related to compassionate love, in life-course studies of Californians (Wink & Dillon, 2003);
- Social service recipients experience greater trust towards service providers based in religious congregations than towards those based in religious or secular service agencies (Wuthnow et al., 2004);
- Spiritual meditation fosters greater CL among health professionals, which in turn fosters improved caregiving efficacy (Oman et al., 2010);
- In US families, greater perceived sanctity of marriage predicts more positive/empathy-based socialisation methods, which in turn predict higher child moral development (Volling, Mahoney, & Rauer, 2009);
- Among US youth, religious/spiritual views predict increasing intentions over time to volunteer, and become civically engaged (Kerestes et al., 2004);
- Among Indonesian Muslim youth, religiousness predicts prosocial behaviour both cross-sectionally and over time (French et al., 2008; Sallquist et al., 2010).

These represent important initial steps, although one might argue that they only scratch the surface of what might be discovered about the relation between religion/spirituality and compassionate love (Post, 2003).

Benchmarks of field development and social impact

The RFP-funded projects generated many important results – but have they coalesced into a scientific field? Findings from this review reveal at least five indicators of progress in scientific field formation. Perhaps most fundamental is the generation of empirical findings, as discussed in the previous section. Other indicators of progress include:

- *Measurement development*. The initiative produced the *Compassionate Love Scale*, a validated scale usable with diverse populations, including spouses, close others, and strangers/humanity (Sprecher & Fehr, 2005). Empirically derived qualitative typologies were also generated for assessing altruistic acts (Mattis et al., 2009; Smith et al., 2006) and caregiver orientations (Graber & Mitcham, 2004);
- *Methodological diversification*. Most CL studies have been observational rather than experimental; RFP-funded studies documented the feasibility of interventions that can raise CL in both real-world and laboratory settings (Mikulincer et al., 2005; Oman et al., 2010);
- *Terminological coordination*. Funded projects initiated processes of cross-referencing and terminological coordination that are essential to scientific field formation, perhaps most importantly by providing the backbone of the edited volume by Fehr et al. (2008) (see also Table 4);
- *Conceptual refinement*. Many projects contributed reviews or theories that advanced the conceptual depth and interconnectedness of CL or closely related fields (e.g., Fehr & Sprecher, 2009; Goetz et al., 2010; Jeffries, 2002; Mattis et al., 2009, p. 81; Nucci & Turiel, 2009; Wuthnow, 2004).

A scientific field is more than a collection of theories and research findings, however. A healthy scientific field also establishes a presence in society and in the consciousness of related scholarly disciplines. Three benchmarks of such progress were identified in this review:

- Substantially strengthening the scientific base for *teaching about* compassionate love to students of all ages, who will enter a wide array of social roles carrying a more informed understanding of CL;
- Generating numerous books, chapters, and magazine articles for educated lay readers and/or human service professionals who interact daily with the public;
- Consolidating the place of CL in "public sociology," defined as "sociological analysis . . . intended . . . to reach . . . the general public [which] is what most sociologists think of when they describe and do public sociology" (Gans, 2009, p. 124).

This review did not systematically assess popular media coverage, which is influenced by many diverse and often capricious forces. However, it is noteworthy that at least one RFP-funded project has received national media attention, confirming the potential for popular interest in CL research: In 2009, *Newsweek* profiled Mikulincer and Shaver's work, explaining how they "wondered if it would be possible to induce feelings of security and self-worth, thereby strengthening the neural circuitry that underlies compassion and altruism . . . The responses confirmed [their] hunch . . . [giving] an intriguing hint that virtue could be boosted" (Begley, 2009 p.48).

Future directions

Our review suggests several areas in which future work is needed, including further work on (A) measurement development, (B) cross-linking and terminological coordination, (C) definitional and conceptual clarification, and (D) cross-cutting or overlooked substantive empirical questions. Advances in each of these areas seem likely to synergistically reinforce and stimulate each other (see Figure 2 in Oman, 2010a).

A. Measurement. Valid measures of central constructs are essential foundations of any scientific field. The CLS and other measurement advances are important achievements. However, they only address a few of the facets of CL. The field can benefit from observer-based as well as state-focused measures, and may also be able to use other recently developed measures with conceptual similarities (e.g., Levin & Kaplan, 2010). Developing a wider and more methodologically varied set of measures will facilitate better understanding of each measure's validity, reliability, and other psychometric properties.

B. Encouraging explicit linkage to the compassionate love literature. "Compassionate love" seems to be emerging as the preferred technical term to describe the central interest of the MIT conference. In contrast to growing use of the phrase "compassionate love" by multiple authors (Table 4), comparatively few professional publications have used the terms "unlimited love" or "altruistic love." However, many of the RFP-supported reports did not articulate their findings with reference to the published CL literature. This situation will likely improve with the appearance of the *SCL* (Fehr et al., 2008), and as the CL literature becomes increasingly well-established and informative. However, CL field funding and development efforts might consider proactive efforts to encourage published reports that cite the CL literature in addition to the investigator's home discipline.

C. Clarifying definitions and concepts. Although the CL-2002 criteria have clearly generated much important research, few RFP-sponsored reports investigated constructs that explicitly addressed all five of Underwood's (2002, 2008) CL-2002 criteria – that is, few attained the metaphorical centre of the target (Figure 1). To resolve this discrepancy, should a fuller CL-2002 implementation be sought in future research? Or, conversely, should the CL criteria themselves be refined or clarified?

Oman (2010a) noted that different CL-2002 criteria may serve useful, but very distinct purposes. He suggested that the substantive core of the CL concept may reside in the first two criteria (no. 1 and no. 2), sometimes phrased as "valuing the other person at a fundamental level" and "free choice for the other." The three remaining criteria (no. 3–no. 5), although more peripheral in certain ways, may still perform very valuable functions in particular settings by preventing the CL concept of from being misinterpreted or forced into a procrustean bed of preexisting research categories (e.g., no. 5, the need to "leave room" for spiritual receptiveness, guards against the imposition of overly reductive models of religion).

Especially problematic is the "cognitive accuracy" CL-2002 criterion, which appears to locate CL in an *individual/situation congruence*, posing major challenges for CL assessment. Accurate CL measurement would require assessing both the focal individual and the environment, and then in some way comparing the two (as done only by Neff & Karney, 2005). In contrast, most definitions of emotions such as "compassion" and "love" refer solely to tendencies, conditions, or attributes of a *focal individual* (e.g., Berscheid, 2010; Goetz et al., 2010; Peterson & Seligman, 2004). This tension might be addressed in several ways, including re-interpreting the criterion as referring to a certain degree of *self-regulated effort or conscientiousness* (rather than realised accuracy), or as aimed primarily at preventing wasteful studies showing only that poorly informed loving intentions can produce bad results.

For future efforts to refine and clarify the CL-2002 criteria, a potential resource is Post's (2003) philosophically and theologically oriented book, which also emerged from the 1999 MIT conference. Oman's analysis (2010a, Appendix C) indicates that analogues of all five CL-2002 criteria are identified by Post as features of unlimited love.

D. Substantive empirical questions. Within particular topic categories, many questions for future research have been identified in various project publications (Table 3), or offered by Oman (2010a). Within each particular sub-area of CL research, the most urgent priorities are a function of the relative abundance and sophistication of the various components of the research process, especially measures, theories, and data. Some sub-areas may benefit most from collecting data based on newly developed measures (e.g., incorporating the *CLS* in variety of surveys), whereas other sub-areas may benefit most from designing experiments to explore implications of new theories (e.g., Goetz et al., 2010).

Across all categories, many important CL findings also merit attempts at conceptual replication with the new generation of CL measures (e.g., Hwang et al., 2008; Levin & Kaplan, 2010; Sprecher & Fehr, 2005). For example, how do CL interventions affect CL measures? How do measures of CL correlate with various neuro-physiological measures?

More broadly, future work should also continue to seek an integrated understanding of the sources of CL: What are the spiritual, cultural, social, developmental, and biological factors that facilitate the emergence of compassionate love? Which factors are most important over various time frames? How do these factors interact with each other, and with other factors that may facilitate or inhibit their operation? Which supportive factors can be substituted for each other, and which, if any, are unique and indispensable?

Several key empirical questions do not fit conveniently into any single topic category, but are relevant to many of them. Four cross-cutting examples are:

- How is CL developed and maintained in saint-like individuals who manifest exceptional levels of CL? Post (2003) noted that "we encounter astounding examples of unselfish human love and sacrifice, suggesting either that our capacity for love is much greater than we might imagine, or that we can be lifted up" (p. 11). For example, Gandhi stated that "by a long course of prayerful discipline, I have ceased for over forty years to hate anybody. I know this is a big claim. Nevertheless, I make it in all humility" (quoted p. 56, Easwaran, 1997).
- How is CL development fostered or hindered by various religious and spiritual practices, such as meditation, prayer, attendance at services, and volunteer service to others? Is CL most effectively fostered by certain *combinations* of spiritual practices that perform complementary functions (e.g., Oman, 2010b)?
- To what extent can we characterise human dyads, groups, or societies as enacting different levels of compassionate love? Wuthnow's project examined perceptions of group-level qualities related to CL (Wuthnow et al., 2004). But can additional impartial, reliable, and valid *measures*, reasonably independent of ideological bias, be devised to assess group-level CL?
- How is CL related to its two linguistic components, *compassion* and *love*? This question requires developing empirically testable theory. For example, if CL is best thought of as a type of love (Berscheid, 2010), then does love express itself as compassion primarily in reaction to perceived suffering (see Table 1 and Goetz et al., 2010)? How is CL proactively expressed in the absence of perceived suffering? How is the transition between proactive CL and suffering-reactive CL regulated psychologically and physiologically?

Strengths, limitations, and generalisability

The present review provides a snapshot of an emerging interdisciplinary field. Its findings reflect the field's richness, diversity, best current efforts, current needs, opportunities, and future directions. We have not, however, provided an exhaustive survey of all scientific research on CL-related constructs, many of which have received considerable previous study (e.g., Davis, 1994). Nor have we systematically examined other concurrent studies of "compassionate love" (e.g., Hwang et al., 2008), or the closely related studies funded by the IRUL RFP on "unlimited love."

A question of interest is whether the overall patterns reported here with respect to "compassionate love" research are generalisable to research on "unlimited love." A definite answer would require a separate review, but findings that seem likely to generalise include (1) generation of supporting evidence for numerous plausible antecedents and consequences of CL; (2) low rates among project reports in citing MIT conference-related definitions (e.g., Post et al., 2002); (3) employment of diverse and rarely "pure" operationalisations of the focal construct, reflecting different subsets of its canonical features; and (4) the likelihood that "unlimited love," to the extent that it is understood in popular culture, may also have a prototype structure.

Implications for studies of spiritual phenomena

More broadly, our findings on field development for compassionate love appear likely to partially generalise to studies of other spiritually relevant phenomena such as wisdom, spiritual transformation, or higher forms of consciousness and human development (Alexander & Langer, 1990).[8] More specifically, the shared origins and features of these spiritual research topics may pose similar methodological challenges, perhaps addressable in part through parallel strategies, efforts, or structures of field development. On the one hand, each field is *enriched* by the availability of perspectives from religious and spiritual traditions, which may suggest conceptual frameworks or hypotheses about antecedents, indicators, and consequences. To the extent that religious and spiritual traditions are repositories of wisdom (Smith, 1991), attempts to corroborate and apply such wisdom in a scientific context represent a form of translational research (Oman & Neuhauser, in press; Tetroe et al., 2008). But on the other hand, each of these fields studies phenomena that are *challenging* to measure because they are partially nonphysical. Such phenomena also tend to be difficult to conceptualise in a definitive way, perhaps in part because of a super-abundance of overlapping concepts within adjacent scientific fields (e.g., empathy, altruism), and within a diverse set of religious and spiritual wisdom traditions.

Accordingly, it seems plausible that the following recommendations, although relevant to most emerging scientific fields, may be especially urgent for fields dedicated to psychological phenomena believed to emerge from spiritual/religious practice or experience: (1) the need to give extra encouragement to ongoing development of measures, (2) the need for extra efforts to foster terminological and conceptual coordination in the face of disciplinary fragmentation and conceptual heterogeneity, and (3) the need to allow diverse approaches tailored to challenges and resources within specific topics or sub-fields.

Conclusions

This review examined outcomes from the Compassionate Love research initiative, with special attention to 55 peer-reviewed studies. Findings reported here showed that compassionate love is increasingly cited in published scientific research, as well as publications intended for educated lay readers. The research literature is becoming better integrated and increasingly cross-referenced over time. However, compassionate love remains a novel and complex construct, and much conceptual and empirical work remains to be done. A range of suggestions was made for future research, including developing additional measures at the individual and group levels, attempts to understand the interplay of different facilitators of compassionate love, especially religious and spiritual facilitators, and studies of extraordinary exemplars. It was suggested that some of the challenges of field development may generalise to studies of other phenomena closely related to religion and spirituality. The author hopes that the evidence, perspectives, and suggestions offered in this review may encourage and facilitate further work in compassionate love and related emerging fields.

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Notes

1. The term "compassionate love" emerged from work by WHO to develop cross-culturally useful tools to measure quality of life. One facet under study was "loving kindness, or love for others... The Buddhists were not happy with the word 'love' but wanted 'compassion' to be used... The Muslims... (from Indonesia, India, and Turkey) were adamant that compassion was too 'cold' and that 'love' needed to be there as it brought in the *feeling* of love, the element of *affect*... 'compassionate love' was the compromise phrase... [which] captures both aspects, addressing human suffering *and* encouraging human flourishing" (Underwood, 2008, pp. 8–9).
2. Web-searches on Google for "compassionate love" showed little evidence of substantial contemporary popular usage (e.g., only seven hits on 30 June 2010 in the "Google News" database for news that has appeared at "any time").
3. Love's second definition, according to the Oxford Universal Dictionary, is "In religious use, applied to the paternal benevolence and affection of God, to the affectionate devotion due to God from his creatures, and to the affection of one created being to another thence arising" (Little, Fowler, Coulson, & Onions, 1955, p. 1171).
4. The full report provides further details on many topics discussed here, including citations to the non peer-reviewed publications from the RFP and the full set of 67 RFP-supported journal articles, published reviews of the *Science of Compassionate Love*, additional investigator-reported influences from the RFP, ways of refining the CL-2002 "cognitive accuracy" criterion, the history of English usage of CL, and ways that CL development efforts might proactively encourage citation of the CL literature.
5. To date, Leaning's report has not been published, but was presented at a 2004 public conference, and has been provided to the funder and the original data collector, the International Committee of the Red Cross.
6. Within religious traditions, romantic love has long been recognised as an exceptionally potent metaphor and tool for cultivating intense love for God. Romantic love as a metaphor for exemplary divine love has been used in the bible (Song of Songs) and by many Western mystics (Underhill, 1911). In Hinduism, aspirants in the *bhakti* tradition cultivate an attitude towards God that corresponds to one of several primary human relationships (child, servant, friend, parent, lover); in the *madhura bhava*, the romantic attitude, tradition recognises that "all the elements of love – admiration, service, comradeship, communion – are present" (Prabhavananda, 1963/1979, pp. 329–330.).
7. Professor Rusbult passed away in January, 2010 (http://www.carylrusbult.com/, accessed 7 September, 2010).
8. Wisdom and spiritual transformation have each been the focus of recent funding initiatives by the John Templeton Foundation.

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