

Mindfulness and Cancer Caregivers: Meta Analysis and Systematic Review

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Introduction

- According to the American Cancer Society (2015), about 1.66 million new cases of cancer will be diagnosed in the United States in 2015
- Informal caregivers play an important role in care for cancer patients in the home (Given, et al., 2005).
- Caregivers face multiple issues when caring for family members at the end of life (McMillan et al., 2006).
- Informal caregivers have a lower quality of life and face increased stress and (Bevans & Sternberg, 2012; Kim & Given, 2008; McMillan et al., 2006).

Introduction

- Mindfulness (Cognitive Behavioral Therapy) decrease psychological distress
 - increase quality of life
 - chronic conditions
 - healthcare professionals
 - caregivers of dementia patient
- Reason for this meta analysis is to evaluate the effects of mindfulness interventions on caregiver's psychological distress.

Methods

- Search Terms: Caregivers, Mini mindfulness, Mindfulness, Cognitive Therapy, complementary Therapies, and Meditation
- PubMed, Embase, Cochrane, Psych Info, and CINAHL
- Inclusion Criteria and Exclusion Criteria

PICOTS: Inclusion Criteria

Populations	Informal adult caregivers of cancer patients
Interventions	Mindfulness interventions: breathing, relaxation
Comparison	Mindfulness versus Care as Usual
Outcomes	Psychological distress
Timing	N/A; 12 months
Setting	Hospital, out-patient clinics, Dr. offices, hospice centers, home setting

Methods

- Search Process: 3 Level Screening, 2 Independent Reviewers, RefWorks
 - Title
 - Abstract
 - Full Article Review
- Data Abstraction and Key Variables
 - Forms: General, Intervention., and Outcome
 - QOL and **Psychological Distress** (anxiety and depression)
- Criteria and Statistics for Meta Analysis
 - Number participants
 - Mean, Standard Deviation, Standard Mean Difference
 - CI 95%
 - Random Effects

Risk of Bias

- Cochrane Risk of Bias Tool
- Systematic Error or Deviation from the Truth
- Flaws in design, conduct, and analysis or RTC lead to bias
- Smaller studies so there was greater sampling variation and therefore are less precise
- Studies Evaluated Individually
- Developed Figure with RevMan

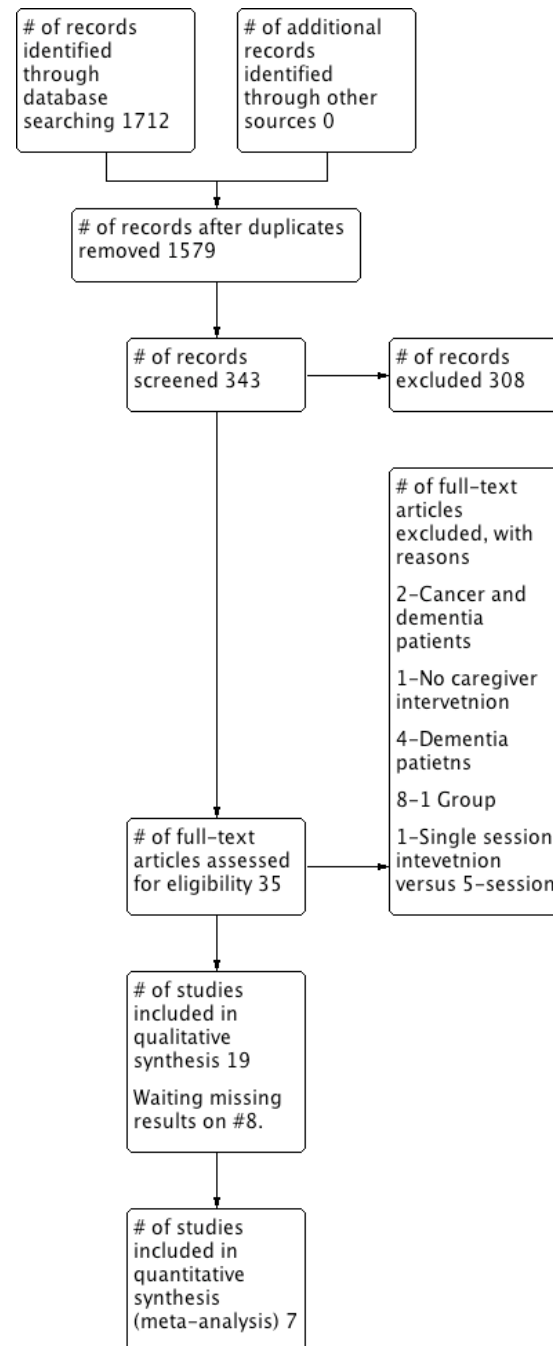
Publication Bias

- Gray Literature Search
- Unpublished Sources
- Is there Publication Bias
- Funnel Plot
 - Small studies
 - Outliers

Grading of Evidence

- High for the 7 Studies Reviewed
- Components
 - Risk of Bias
 - Consistency
 - Directness
 - Precision
 - Magnitude of Effect
 - Conclusion
 - Strength of Evidence

PRISMA Flow Diagram



Study Characteristics

Author (Year)	Country	Study Design	Population	Follow-up	Intervention	Instrument	Outcome	Level of Evidence
Bengt et al. (2015)	Malaysia	RTC	Cancer Caregiver & Patient	-2.5 min -5 min	Mindful breathing	Distress Thermometer	Mindful breathing reduced distress	Level 1 B
Fegg et al. (2013)	Germany	RTC	Cancer Caregiver	-3 mo -12 mo	Existential Behavioral Therapy (EBT) -6 session; Mindfulness	Brief Symptom Inventory (BSI)	EBT exerts beneficial effects on Distress and QOL	Level 1 B
Hudson et al. (2005)	Australia	RTC	Cancer Caregivers	-5 weeks -8 weeks after death	Structured relaxation plus other (psycho-educational)	Hospital Anxiety and Depression Scale (HADS)	Within- Decrease in mean anxiety score both; Intervention-no negative sequelae; Self-Efficacy	Level 1 A
Kogler et al. (2015)	Germany	RTC	Cancer Caregivers	-3 mo -12 mo	Existential Behavioral Therapy (EBT) -6 session; Mindfulness	Brief Symptom Inventory (BSI)	Mindfulness improved psychological distress and QOL	Level 1 B

Study Characteristics cont'd

Author (Year)	Country	Study Design	Population	Follow-up	Intervention	Instrument	Out-come	Level of Evidence
Schellekens et al. (2017)	Netherlands	RTC	Lung Cancer Caregivers & Patients	-Post Intervention. - 3 mo	Mindfulness-based stress reduction (MBSR) –8 sessions; Mindfulness	Hospital Anxiety and Depression Scale (HADS)	No significant differences	Level 1 A
Badr Et al. 2015	USA	RTC	Lung Cancer Caregivers & Patients	-8 weeks	Cognitive behavioral therapy (CBT) – 6 weekly, 60 min. telephone sessions	PROMIS	Decreased anxiety, depression, and caregiver burden	Level 1 B
Mosher Et al. 2016	USA	RTC	Lung Cancer Caregivers & Patients	-2 weeks -6 weeks	Cognitive behavioral therapy (CBT) – 4 weekly, 45 min telephone sessions	Generalized Anxiety Disorder (GAD-7)	No significant differences	Level 1 B

Population Characteristics

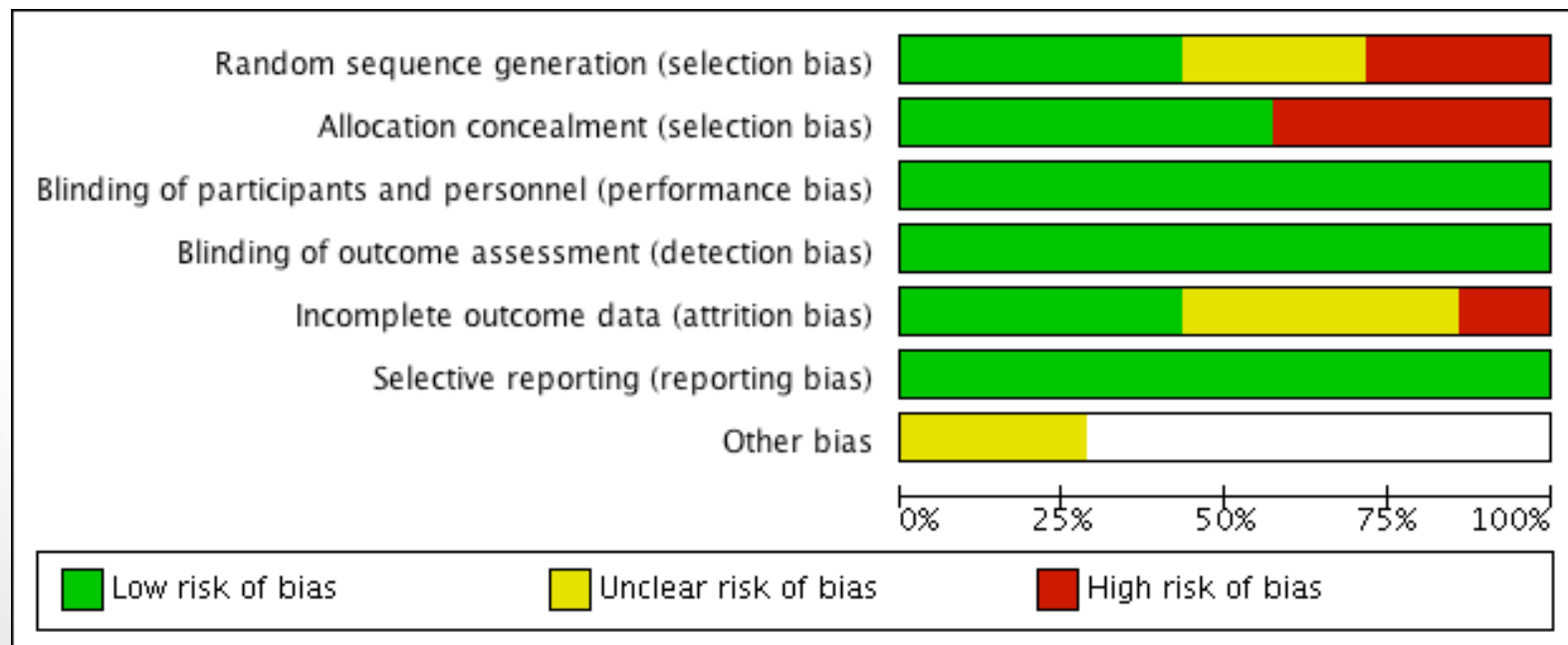
Author (Year)	Sample Size Start/End	Number Intv/Control	Age/Gender Intv Control	Sample Characteristics
Beng et al. (2015)	20/2020	10(7)/ 10(4)	47/M-3 54/M-1	Marital Status, Religion
Fegg et al. (2013)	160/125	66/ 59	54.3/F-50 54.7/F-43	Religion, Education, Employment, Pt CA Diagnosis, Use of Support
Hudson et al. (2005)	106/45	20/ 25	60.78/F-65.1%	Australian born, Christians, Help, Caregiver health, Income, Work, Education, Want to care; Also Pt profile
Kogler et al. (2015)	160/130	73/57	54.5/F-72.6% 54/68.4%	Pt is, Education, When Pt died, Pt Diagnosis

Population Characteristics (cont'd)

Author (Year)	Sample Size Start/End	Number Intv/Control	Age/Gender Intv Control	Sample Characteristics
Schellekens et al. (2017)	44/31	21/15 23/16	60.8/F-12 56.6/F-13	Marital status, education level, employment
Badr Et al. 2015	39/38	20/20 19/18	51.10 both M/F & Intervention/Ca re as usual M-21, F-27	Race, employment, education, relationship
Mosher Et al. 2016	106/106	51/51 55/55	56.3/M-14 56.75/M-15	Race, income, employment, education, relationship, Living with, marriage, psych meds, counseling

Risk of Bias

	Schellekens	Mosher	Kogler	Hudson	Fegg	Beng	Badr	
	?	-	-	?	+	+	+	Random sequence generation (selection bias)
	+	-	-	+	+	+	-	Allocation concealment (selection bias)
	+	+	+	+	+	+	+	Blinding of participants and personnel (performance bias)
	+	+	+	+	+	+	+	Blinding of outcome assessment (detection bias)
	+	?	?	-	?	+	+	Incomplete outcome data (attrition bias)
	+	+	+	+	+	+	+	Selective reporting (reporting bias)
	?						?	Other bias

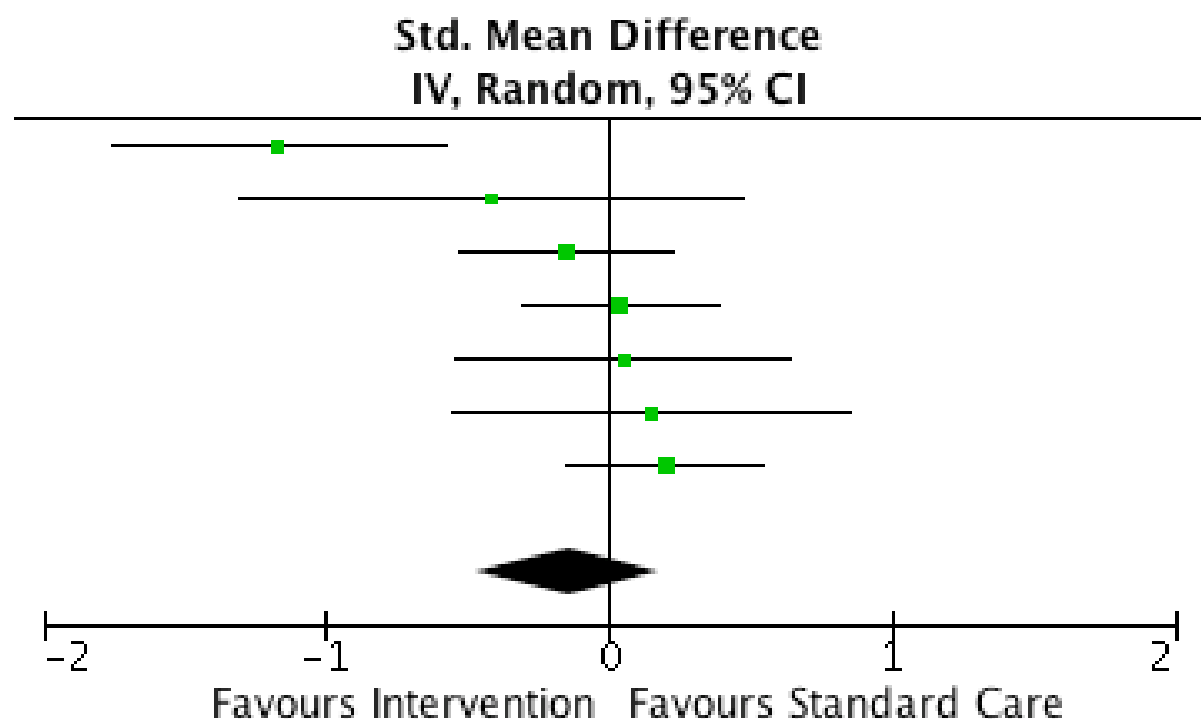


Meta Analysis

Study or Subgroup	Experimental/Mindfulness			Control/Standard Care			Std. Mean Difference	
	Mean	SD	Total	Mean	SD	Total	Weight	IV, Random, 95% CI
Badr	12.1	3.6	39	17.16	5.41	19	13.1%	-1.17 [-1.76, -0.58]
Beng	3.5	3.62	10	5	3.25	10	8.4%	-0.42 [-1.31, 0.47]
Mosher	5	4.77	51	5.86	6.25	55	17.7%	-0.15 [-0.53, 0.23]
Fegg	53.7	11.6	66	53.2	11.6	59	18.4%	0.04 [-0.31, 0.39]
Hudson	6.96	4.02	20	6.76	3.72	25	13.1%	0.05 [-0.54, 0.64]
Schellekens	12.75	7.55	15	11.69	6.52	16	11.0%	0.15 [-0.56, 0.85]
Kogler	2.8	0.5	73	2.7	0.5	57	18.4%	0.20 [-0.15, 0.55]
Total (95% CI)			274			241	100.0%	-0.15 [-0.47, 0.17]

Heterogeneity: $\tau^2 = 0.11$; $\chi^2 = 17.29$, $df = 6$ ($P = 0.008$); $I^2 = 65\%$
 Test for overall effect: $Z = 0.90$ ($P = 0.37$)

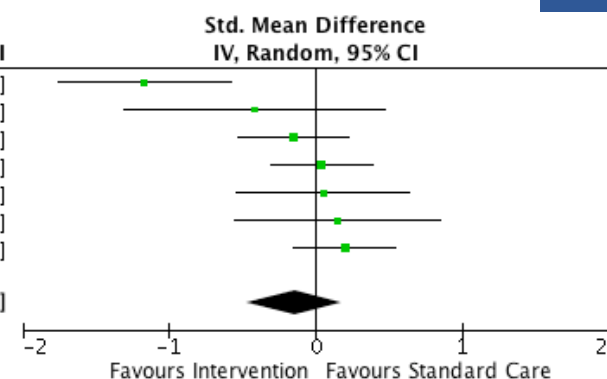
Forest Plot



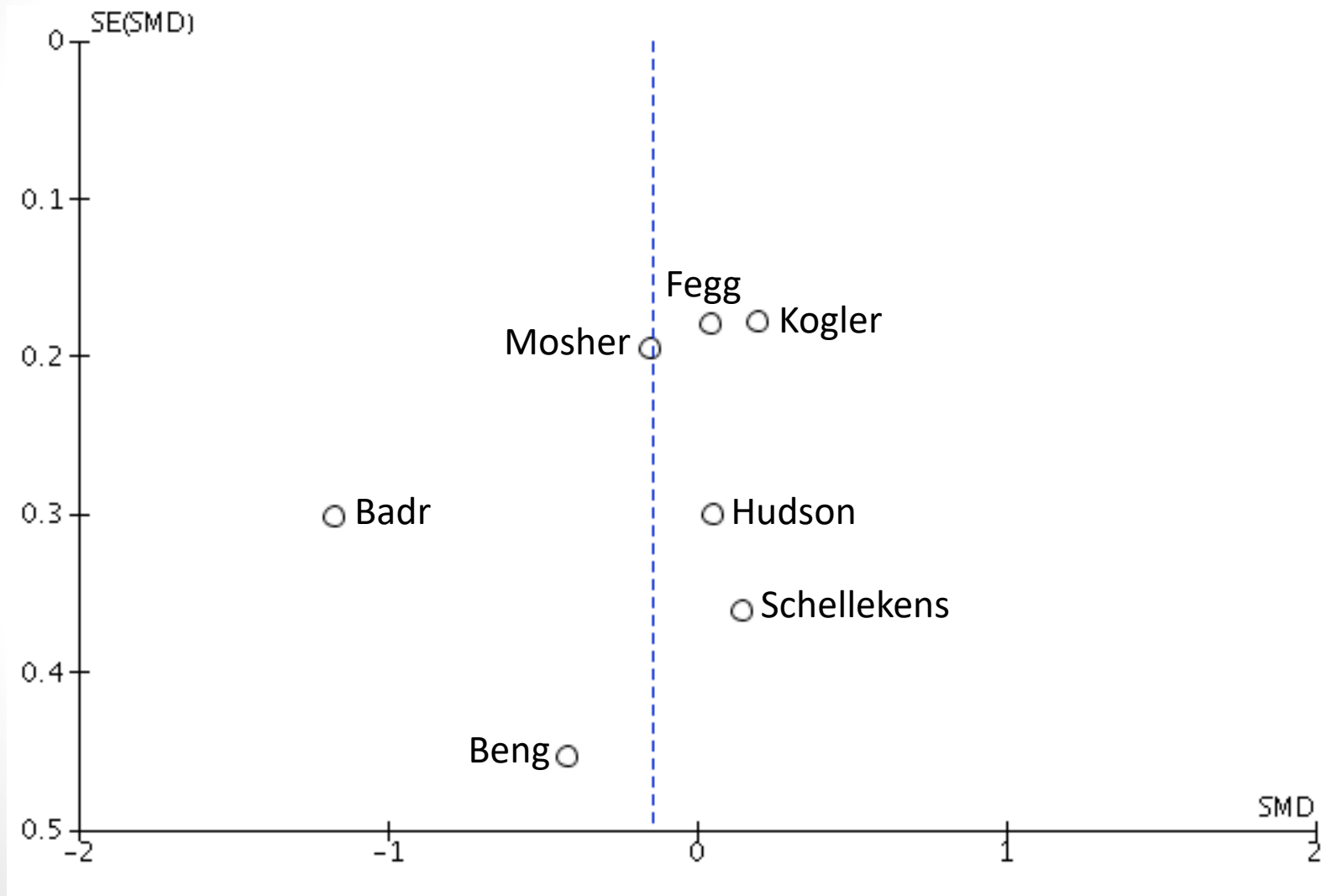
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Publication Bias: Funnel Plot



Evidence Grading

Comparison	Articles N participants	Risk of Bias	Consistency	Directness	Publication bias	Precision	Magnitude of effect	Conclusion	Strength of Evidence
Mindfulness vs Usual Care	4/320	Low	Consistent	Direct	Undetected	Precise	Small	Mixed results for Mindfulness Intervention vs Usual Care	Moderate

Key Findings

- Questionable if there is a decrease psychological distress with mindfulness intervention
- There is a large heterogeneity-studies are different from each other; greater than just chance alone
- Publication bias-unknown how many negative studies
- Few studies

Limitations

- Few studies
- Small sample sizes
- Different empirical measures
- Mindfulness interventions not the exactly the same – not standardized
- Only had 2 independent reviewers

Novel Findings

- Mixed results for mindfulness versus standard care to decrease psychological distress in cancer caregivers
- Mixed evidence although studies claim that mindfulness reduces caregiver psychological distress

Implications

- Need more RTC
- Larger Sample Size
- Need consistent measurement tools
- Evaluate QOL and Psychological Distress
- Include patient characteristics
- Consider disease trajectory of patients