APPENDIX I

Detailed search strategy and selection methods

1. All databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted.

MEDLINE: date accessed – March 5th 2020
EMBASE: date accessed – March 5th 2020
PsycInfo: date accessed – March 5th 2020

2. Search strategy for MEDLINE (the same strategy was used for PsycInfo and EMBASE)

	Search terms	**# of articles retrieved**
1	journaling.mp.	368
2	gratitude.mp.	1366
3	Reflective journal*.mp.	319
4	Journal writing.mp.	98
5	Reflective practice.mp.	1227
6	Expressive writing.mp.	311
7	Written emotional disclosure.mp.	61
8	exp Depression/	115331
9	depress*.mp.	532094
10	exp Self-Injurious Behavior/	69278
11	exp Substance-Related Disorders/	273882
12	addiction.mp.	45821
13	exp Anxiety/ or exp Anxiety Disorders/	152206
14	exp Mental Health/	36661
15	exp Stress Disorders, Post-Traumatic/	31689
16	exp Mental Disorders/	1216337
17	trauma.mp.	259553
18	exp Chronic Pain/	13647
19	mental health.mp.	184811
20	1 or 2 or 3 or 4 or 5 or 6 or 7	3545
21	8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 or 16 or 17 or 18 or 19	1989928
22	20 and 21	702
23	limit 22 to English language	686
	Total	**686**
	duplicates	**0**

3. Methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process.

Excel was utilized to extract articles from the databases and for the primary screening process. Inclusion criteria was determined following a brief literature search prior to article retrieval and was modified accordingly with team input as the screening proceeded. Two reviewers performed the primary screen in collaboration with a third reviewer available to resolve any conflict regarding inclusion. Two reviewers performed the secondary screen in collaboration with a third reviewer available to resolve any conflict regarding inclusion

4. Methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process.

Two reviewers extracted data from included studies independently and in duplicate, and a third reviewer was available to resolve any conflict regarding inclusion

5. Methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process.

The Cochrane risk of bias tool (ROB-2) and strength of recommendations taxonomy (SORT) were utilized to determine risk of bias and quality of the literature, respectively. A single reviewer completed both of these with reference to guidelines established by the ROB-2 and SORT creators.

APPENDIX II

References for Articles Analyzed in the Systematic Review and Meta-Analysis

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APPENDIX III

Demographic variables, results and questionaries used to measure outcomes across studies

Study	Population	Sample Size	Results (+/-)*	Measures±
Alparone et al (2015)	undergraduate students	62	(+) significant decrease in anxiety	POMS
Barry & Singer (2001)	mothers with an infant in NICU	38	(+) significant decrease in PTSD-related symptoms	IES-R
Barton & Jackson (2008)	caregivers of individuals suffering from psychosis	36	(-) no significant outcomes	GHQ-28, IES-R
Bernard et al (2006)	individuals recovering from psychosis	22	(+) significant decrease in PTSD-related symptoms	IES-R
Dennick et al (2015)	adults with type 2 diabetes	41	(-) significant increase in depressive symptoms	CES-D
Di Blasio et al (2015)	women with PPD	113	(+) significant decrease in symptoms of PPD & PTSD	BDI-II, PPQ
Ducasse et al (2018)	suicidal inpatients	198	(+) significant decrease in symptoms of depression and anxiety	STAI, BDI
Graf et al. (2008)	individuals receiving outpatient psychotherapy	44	(+) significant decrease in symptoms of anxiety	DASS

Horsch et al (2016)	mothers who have had a pre-term birth	54	(+) significant decrease in symptoms of depression and PTSD	EPDS, PPQ
Jensen-Johansen et al (2012)	breast cancer survivors	318	(+) significant decrease in symptoms of depression and PTSD	BDI, IES-R
Koopman et al (2005)	survivors of intimate partner violence	47	(+) significant decrease in depressive symptoms (-) no significant reductions of PTSD-related symptoms	BDI, PCL-5
Lovell et al (2016)	caregivers of children with autism	74	(+) significant decrease in symptoms of depression (-) no significant reductions in symptoms of anxiety	HADS
Martino et al (2012)	parents of children suffering from leukemia	46	(+) significant decrease in symptoms of depression and anxiety	POMS
Meshberg-Cohen et al (2014)	women receiving treatment for addiction	149	(+) significant reductions in symptoms of PTSD	PDS
Possemato et al (2010)	kidney transplant recipients	48	(-) no significant reductions in symptoms of PTSD	PCL-M
Rabiepoor et al (2019)	mothers with infants in the NICU	91	(+) significant decrease in symptoms of PPD	EPDS

Rawlings et al (2018)	individuals suffering from seizures	68	(-) no significant reductions in anxiety (+) significant decrease in depressive symptoms	GAD-7, NDDI-E
Schache et al (2019)	adolescents with type 1 diabetes	60	(-) no significant reductions in symptoms of depression	CES-D
Suhr, Risch & Wilz (2017)	recently discharged psychiatric patients	89	(+) significant decrease in symptoms of depression	BDI-II
Wong & Mak (2016)	university students	65	(-) no significant reductions symptoms of depression	CES-D

[*]+ indicates an effective intervention with significant differences between control and intervention groups.

- indicates an intervention that was not effective with no significant differences between control and intervention groups.

[±] refer to Appendix V for detailed names of measures used.

APPENDIX IV

Journaling type, mental illness symptom studied, effect size, and significance of outcomes across individual studies

Study	Intervention	Mental Illness Symptom	Cohen's d Effect Size	Outcome (+/-)*
Alparone et al (2015)	Expressive Writing	Anxiety	0.646	+
Graf et al. (2008)	Expressive Writing	Anxiety	0.293	+
Lovell et al (2016)	Expressive Writing	Anxiety	0.432	-
Martino et al (2012)	Expressive Writing	Anxiety	0.396	+
Rawlings et al (2018)	Expressive Writing	Anxiety	0.143	-
Barton & Jackson (2008)	Expressive Writing	Anxiety	0.026	-
Barry & Singer (2001)	Expressive Writing	Depression	0.805	+
Barton & Jackson (2008)	Expressive Writing	Depression	0.28	-
Dennick et al (2015)	Expressive Writing	Depression	4.193	-
Di Blasio et al (2015)	Expressive Writing	Depression	0.418	+
Horsch et al (2016)	Expressive Writing	Depression	0.221	+

Jensen-Johansen et al (2012)	Expressive Writing	Depression	0.117	+
Koopman et al (2005)	Expressive Writing	Depression	0.376	+
Lovell et al (2016)	Expressive Writing	Depression	0.296	+
Martino et al (2012)	Expressive Writing	Depression		+
Rabiepoor et al (2019)	Expressive Writing	Depression	0.705	+
Rawlings et al (2018)	Expressive Writing	Depression	0.275	+
Wong & Mak (2016)	Expressive Writing	Depression	0.391	-
Barry & Singer (2001)	Expressive Writing	PTSD	0.766	+
Barton & Jackson (2008)	Expressive Writing	PTSD	0.039	-
Bernard et al (2006)	Expressive Writing	PTSD	0.296	+
Di Blasio et al (2015)	Expressive Writing	PTSD	0.937	+
Horsch et al (2016)	Expressive Writing	PTSD	0.371	+
Jensen-Johansen et al (2012)	Expressive Writing	PTSD	0.147	+

Koopman et al (2005)	Expressive Writing	PTSD	0.104	-
Meshberg-Cohen et al (2014)	Expressive Writing	PTSD	0.000	+
Possemato et al (2010)	Expressive Writing	PTSD	0.411	-
Ducasse et al (2018)	Gratitude Journaling	Anxiety	0.279	+
Ducasse et al (2018)	Gratitude Journaling	Depression	0.104	+
Schache et al (2019)	Gratitude Journaling	Depression	0.16	-
Suhr, Risch & Wilz (2017)	Gratitude Journaling	Depression	0.33	+

*+ indicates an effective intervention with significant differences between control and intervention groups.

- indicates an intervention that was not effective with no significant differences between control and intervention groups.

APPENDIX V

Abbreviated and full names of patient health measures used in studies to measure outcomes

Measures
BDI = Beck Depression Inventory
BDI-II = Beck Depression Inventory second edition
CES-D = Centre for Epidemiological Studies Depression Scale
DASS = Depression Anxiety Stress Scale
EPDS = Edinburgh Post-natal Depression Scale
GAD-7 = General Anxiety Disorder 7-items
GHQ-28 = General Health Questionnaire 28-items
GHQ-9 = General Health Questionnaire 9-items
HADS = Hamilton Anxiety and Depression Scale
IES-R = Impact of Event Scale Revised
MASC = Multidimensional Anxiety Scale for Children
NDDI-E = Neurological Disorders Depression Inventory for Epilepsy
PCL-M = PTSD Checklist Military Version
PCL-5 = PTSD Checklist for the DSM-5
PDS = Post-traumatic Diagnostic Scale
PPQ = Perinatal PTSD Questionnaire
PHQ-9 = Patient Health Questionnaire 9-items
POMS = Profile of Mood States

APPENDIX VI

Results of Meta-regression for Anxiety

SYMPTOM	**ANXIETY**					
	Intervention Arm			**Control Arm**		
Variable	**Regression Coefficient**	**p-value**		**Regression Coefficient**	**p-value**	
Sample Size	0.029	0.772		-0.088	0.270	
Type of Journaling	-0.025	0.805		0.004	0.968	
Study Duration	—			—	0.503	
Journal Analysis	-0.155	0.057		-0.083	0.301	
Sex	0.178	0.038*		0.181	0.002*	
Age	0.017	0.871		-0.061		
Region-Europe	0.026	0.850	—	0.021	0.867	—
Region-North America	—			—		
Region-Australia	—			—		

Results of Meta-regression for Depression

SYMPTOM	**DEPRESSION**			
	Intervention Arm		**Control Arm**	
Variable	**Regression Coefficient**	**p-value**	**Regression Coefficient**	**p-value**
Sample Size	0.024	0.616	-0.012	0.711
Type of Journaling	-0.050	0.226	-0.051	0.065
Study Duration	-0.104	0.005*	-0.056	0.035
Journal Analysis	-0.078	0.043	-0.012	0.678
Sex	0.041	0.299	0.025	0.357
Age	-0.003	0.939	-0.019	0.492

Region-Europe	-0.082	0.313	0.673	-0.024	0.684	0.722
Region-North America	-0.140	0.284		-0.108	0.295	
Region-Australia	-0.060	0.599		-0.042	0.610	

Results of Meta-regression for PTSD

SYMPTOM	**PTSD**					
	Intervention Arm			**Control Arm**		
Variable	**Regression Coefficient**	**p-value**		**Regression Coefficient**	**p-value**	
Sample Size	-0.005	0.897		-0.001	0.980	
Type of Journaling	—			—		
Study Duration	—			—		
Journal Analysis	-0.017	0.647		0.006	0.803	
Sex	0.032	0.398		-0.012	0.642	
Age	0.073	0.012*		—		
Region-Europe	0.018	0.630	—	-0.013	0.555	—
Region-North America	—			—		
Region-Australia	—			—		

APPENDIX VII

Results from the Cochrane risk of bias assessment tool for randomized control trials

Study	Risk-of-bias judgement Domain 1	Risk of bias judgement Domain 2	Risk of bias judgement Domain 3	Risk of bias judgement Domain 4	Risk of bias judgement Domain 5	Risk of bias judgement overall
Alparone et al (2015)	Some Concerns	High	Some Concerns	Low	Some Concerns	Some Concerns
Bernard et al (2006)	Low	Low	Low	Low	Some Concerns	Some Concerns
Dennick et al (2015)	Low	Low	Low	Low	Low	Low risk of bias
Di Blasio et al (2015)	Low	Low	Low	Low	High	Low risk of bias
Ducasse et al (2018)	Low	Low	Low	Low	Low	Low risk of bias
Graf et al. (2008)	Some Concerns	High	Low	Low	Low	High risk of bias
Horsch et al (2016)	Low	Low	Low	Low	Low	low risk of bias
Jensen-Johansen et al (2012)	Low	Low	Low	Low	Low	Low risk of bias
Barton & Jackson (2008)	Low	Some Concerns	Low	Low	Low	Low risk of bias
Koopman et al (2005)	Some Concerns	Low	High	Low	Low	High risk of bias

Barry & Singer (2001)	Low	Low	Low	Low	Low	Low risk of bias
Lovell et al (2016)	Low	Low	Low	Some Concerns	Low	Low risk of bias
Suhr, Risch, & Wilz (2017)	Low	Low	Low	Low	Low	Low risk of bias
Martino et al (2012)	High	High	Low	Some Concerns	Low	High risk of bias
Meshberg-Cohen et al (2014)	Some Concerns	Low	Low	Low	Low	Some Concerns
Possemato et al (2010)	Low	Low	Low	Low	Low	Low risk of bias
Rabiepoor et al (2019)	Low	Low	Low	Low	Low	Low risk of bias
Rawlings et al (2018)	Low	Low	Some Concerns	Low	Low	Some Concerns
Schache et al (2019)	Low	High	Some Concerns	Low	Some Concerns	High risk of bias
Wong & Mak (2016)	Low	Low	Low	Low	Low	Low risk of bias