Existential Interventions in Cancer – An Umbrella Review

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Abstract

Background:

Conclusions about the effectiveness of existential interventions for cancer patients are limited by the application of various intervention types and outcomes. We conducted an umbrella review (i.e., a review of reviews) to create a comprehensive overview of their effectiveness, to guide clinical decision-making and future research. We aimed to a) identify which outcomes can be effectively influenced by existential interventions, and b) determine factors impacting treatment outcomes.

Method:

We systematically searched four databases (Scopus, PubMed, PsycINFO, Cochrane Database). Main selection criteria were: 1) systematic review of quantitative studies or meta-analysis, 2) reviewing the effectiveness of existential interventions, and 3) including adult cancer patients. Outcome or comparison group requirements were not specified. Results were narratively synthesized according to our aims.

Results:

The search yielded 855 unique records. Eight reviews were included in the final analysis. Existential interventions had a beneficial (short-term) impact on meaning, hope, quality of life, self-efficacy, and self-esteem. Effects on psychopathology and physical distress were inconsistent and non-significant, respectively. Treatment effects were not influenced by patient characteristics, while some intervention characteristics (e.g., intervention provider and intensity) and study characteristics (e.g., study quality) played a role.

Conclusions:

Existential interventions appear to improve the existential and psychological well-being of adult cancer patients. Potentially, effects on existential outcomes are intervention-specific and only subsequently alleviate psychopathology. The inclusion of low-quality studies in the selected reviews and the lack of screening and data-extraction by two researchers form limitations. Future research could investigate the culture-specificity and adverse effects of existential interventions.

Keywords: cancer, existentialism, meaning-centered psychotherapy, life review, dignity therapy, umbrella review

Existential Interventions in Cancer – An Umbrella Review

Cancer represents a global health problem, which not only creates a growing economic burden but is also related to high rates of psychological distress, such as depression and anxiety (Burgess et al., 2005; Linden, Vodermaier, MacKenzie, & Greig, 2012; World Health Organization, 2018). Additionally, up to 25% of cancer patients experience moderate to severe levels of distress due to an awareness of existential topics (de Faye, Wilson, Chater, Viola, & Hall, 2006; Lee & Loiselle, 2012; Pelletier, Verhoef, Khatri, & Hagen, 2002). This existential distress has been linked to further detrimental effects (Breitbart et al., 2000). Existential interventions that aim at developing a more adaptive relationship with existential topics appear beneficial (e.g., Breitbart et al., 2018). However, the available literature is – also due to the heterogeneity of existential interventions (Correia, Cooper, Berdondini, & Correia, 2016) – scattered. This lack of integration hinders not only directed future research, but also informed clinical decision-making and a further development of existential interventions. The current paper therefore seeks to summarize and synthesize the available evidence on existential interventions in adult cancer patients by means of a systematic umbrella review (Aromataris et al., 2015).

Existential Distress

Cancer patients report high levels of existential distress, independent of the type of operationalization (de Faye et al., 2006; Neel, Lo, Rydall, Hales, & Rodin, 2015; Pelletier et al., 2002; Bovero et al., 2018; Philipp et al., 2016; Tang, Chiou, Lin, Wang, & Liand, 2011; Vehling et al., 2017). While existential distress appears to be present in all cancer stages (Pascal & Endacott, 2010; Vehling et al., 2012), an increase in existential distress has been observed in late-stage cancer patients when nearing death (Lichtenthal et al., 2009). Also, up to half of cancer survivors display existential distress (Vehling & Philipp, 2018). While the confrontation with existential issues can benefit well-being if handled well (Sears, Stanton, Danoff-Burg, 2003; Yalom, 1980), cancer patients regularly experience their existential needs to be unmet (Balboni et al., 2007; Jakobsson, Hallberg, & Lovén, 1997). Additionally, existential distress has been related to suicidal ideation in a large group of cancer patients, independent of mental health problems (Vehling et al., 2017). These outcomes highlight the need to gain insight into the effectiveness of interventions that address existential topics, to alleviate distress and to facilitate well-being.

In order to understand how existential distress can be alleviated, it can help to look at what exactly is meant by existential distress and at how it arises in cancer patients. The focus on existential distress has its foundations in the philosophical movement of existentialism,

which deals with topics that are inherent to human existence, such as boredom, freedom, and death (Crowell, 2004/2015) and which proposes that the confrontation with these topics can be aversive (Tillich, 1952). The experience of this confrontation lacks consistent terminology (e.g., existential distress/anxiety/terror) and a clear definition. Its definitions appear to unite in emphasizing a severe change in the ordinary relationship between the self and its parts as well as the world (van Bruggen, 2018). As an example, psychiatrist Irvin Yalom (1980) outlined four "existential givens" – namely death, freedom, existential isolation, and meaninglessness. The awareness of these givens can cause existential anxiety, as they are incompatible with the ordinary human strivings for continued existence, structure, connection, and meaning. When dealt with maladaptively, they can result in psychopathology. Individuals typically become aware of existential givens by reflection, but awareness can be accelerated by the confrontation with so-called "boundary situations", such as encounters with mortality or the disruption of (parts of) one's worldview (Yalom, 1980).

Hence, from an existential perspective, a cancer diagnosis can be viewed as a boundary situation exposing an individual to the threat of potential mortality and heightening the awareness of their existential situation (Lee & Loiselle, 2012). Consequently, cancer patients can perceive an altered relation with themselves and the world, which, in the oncological literature, is often termed "existential distress" (Boston et al., 2011; Kissane, 2012). In his typology of existential distress, Kissane (2012) states that this existential distress can be elicited by traditional existential concerns as outlined by Yalom (death, existential isolation, freedom, meaning), as well as by the themes of loss and change, dignity of the self, altered quality of relationships, and mystery and the unknowable. Aligning with this view, existential distress has also been operationalized with more cancer-specific constructs such as fear of cancer recurrence, a loss of dignity and hope, and spiritual distress (Vehling & Kissane, 2018). Thus, a variety of topics might generate existential distress in cancer patients.

Existential Interventions

But which existential interventions can be employed to support cancer patients in the confrontation with these topics? Defining existential interventions is difficult, as they include various schools of thought. In general, two approaches can be distinguished and will be included in the current review. The first approach concerns traditional existential therapies (Cooper, 2003; Correia et al., 2016; van Deurzen et al., 2019). While different branches of existential therapy vary in their techniques and goals (Correia et al., 2016), they agree on several assumptions and therapeutic practices (Vos, Cooper, Correia, & Craig, 2015). For instance, they assume that existential givens color individual's perception of the world, that

human functioning is optimal when existential needs are satisfied, and that dealing with existential givens inadequately can give rise to distress (Vos et al., 2015). Moreover, specific types of practices are common to traditional existential therapies. For example, practices informed by existential assumptions refer to the direct exploration of existential givens and authentic ways to relate to them. Phenomenological practices concern an appreciation of an individual's whole inner life and the promotion of self-insight by traditional phenomenological methods and an empathic encounter with the client. Relational practices regard the development of and focus on a deep and open therapeutic alliance (Vos et al., 2015). These practices can thus support patients in re-establishing an adaptive relationship with the givens of existence (Correia et al., 2016).

The second approach concerns existential interventions that address cancer patient's characteristic existential needs and concerns – such as hope, dignity, and meaning (Henoch & Danielson, 2009; Vehling & Kissane, 2018). Some of them were originally designed for terminally ill patients or older adults but have been adapted for cancer patients. As these existential interventions are focused on divergent cancer-specific existential concerns and are not integrated into a general framework, we will give a variety of examples of this second approach to existential interventions.

As a first example, life review interventions – originally developed for older adults – concern a guided review and re-evaluation of one's whole life. They can be conducted in different formats and with varying goals (Westerhof, Bohlmeijer, & Webster, 2010), though the attribution of meaning to life (events) by the integration of various recollections appears to be a central process (Westerhof & Bohlmeijer, 2014). Life review interventions have been adapted for the use with terminally ill patients (Pickrel, 1989), and have positively affected self-esteem, quality of life, spiritual well-being, and depression in cancer patients (Ando, Tsuda, & Moorey, 2006; Ando, Tsuda, & Morita, 2007).

Similarly, dignity therapy aims to reduce existential distress in terminally ill patients, by employing techniques that sustain feelings of dignity and value (Chochinov et al., 2002; Chochinov et al., 2005). It consists of one session wherein the parts and themes most important to the patient's life are discussed, and a second session wherein an edited transcript of the first session is prepared to be shared with loved ones. The intervention seems to promote not only dignity but also a sense of meaning and purpose (Chochinov et al., 2005), and has been applied in advanced cancer patients (Hall et al., 2011).

Further, cognitive-existential group psychotherapy was specifically designed for women with breast cancer (Kissane et al., 2003). It describes a group therapy program

involving 20 weekly sessions that focus on existential concerns and coping strategies to facilitate positive emotions. While patients qualitatively reported personal growth and improved coping skills after the program, only trends towards decreased anxiety and enhanced relationships were demonstrated in quantitative analyses (Kissane et al., 2003).

As a last example, meaning-centered psychotherapy for cancer patients as well as survivors has been developed and can be administered in both individual and group formats (Greenstein & Breitbart, 2000). Based on the works of Frankl (1985) and Yalom (1980), these 8-week programs address the experience of existential givens with a specific focus on sources of meaning. It is argued that by equipping patients with the skills to find meaning in their lives, psychopathology will be alleviated subsequently (Vos & Vitali, 2018). Beneficial effects have been found on meaning and purpose, hope, spiritual well-being, and psychological distress (Breitbart et al., 2010; Breitbart et al., 2018; van der Spek et al., 2017).

The Current Review

The breadth of existing interventions for adult cancer patients is encouraging. Recently published reviews also point to their potential usefulness but have drawn somewhat different conclusions about their specific effectiveness (e.g., Wang, Chow, & Chan, 2017; Zhang, Xiao, & Chen, 2017). Due to their selection of different outcome measures, cancer populations, intervention types, and study designs, it is impossible to draw conclusions about when and for which areas existential interventions are suitable. As this information is crucial to derive implications for clinical practice, as well as to identify gaps in the literature, we seek to create a broad overview of the currently available knowledge about existential interventions in adult cancer patients. Specifically, we aim to a) identify which outcomes can be effectively influenced by existential interventions (e.g., existential; psychological), and b) determine potential factors impacting treatment outcomes (e.g., patient characteristics).[1]

We answer these aims through an umbrella review. This method of reviewing the results of previous reviews and meta-analyses is particularly suited to present a comprehensive picture of diverse interventions, especially in the light of a large but inconsistent evidence base (Aromataris et al., 2015; Smith, Devane, Begley, & Clarke, 2011). Based on the literature reviewed above (Correia et al., 2016; Henoch & Danielson, 2009; Vehling & Kissane, 2018; Vos et al., 2015), we defined existential interventions as aligning with one of the traditional existential therapy schools, and/or addressing cancer patient's characteristic existential needs and concerns.

[1] We originally aimed to additionally analyze whether the evidence base differs between intervention types. However, the broad selection criteria of the selected reviews with regard to the included intervention types made answering this aim impossible. We return to this limitation in the discussion section.

Method

Search Strategy

Umbrella reviews (also "overview of reviews", "meta-reviews", "reviews of reviews") are an upcoming methodology, for which a systematically developed reporting guideline is currently under development (Pollock et al., 2019). Therefore, we performed our umbrella review in line with the PRISMA guidelines (Preferred Reporting Items for Systematic Reviews and Meta-analyses; Moher et al., 2009) and the MARQ checklist (Metareview Assessment of Reporting Quality; Singh, 2012). We systematically searched four databases, namely Scopus, PubMed, PsycINFO, and the Cochrane Database of Systematic Reviews. The search was performed on 25/04/2020. Search terms were related to population (e.g. cancer, tumor), intervention (e.g., existential, meaning-centered), and study design (e.g., systematic review, meta-analysis). As a preliminary search revealed that reviews investigating populations with terminal illnesses or life-threatening diseases often include a large amount of cancer patients, we also added broader keywords for population (e.g., terminal illness) to prevent missing potentially relevant reviews. Aligning with our aim to create a broad overview of the effectiveness of existential interventions, we did not specify keywords concerning comparison groups or outcomes. An overview of the exact keywords used per database is presented in Appendix A. Besides, we screened the reference lists of included articles for further reviews.

Study Selection

We employed the following selection criteria:

1) Articles were peer-reviewed systematic reviews of quantitative studies, or meta-analyses. To cover the full range of currently available reviews, we included reviews that concerned randomized controlled trials (RCTs), as well as non-controlled or non-randomized primary studies. Reviews including case reports, qualitative studies, or opinions were excluded.

2) Articles reviewed the effectiveness of existential interventions as defined in the introduction. Consequently, and in line with Bauereiß et al. (2018), reviews on body-mind interventions (e.g., yoga) were excluded. Reviews on religious/spiritual interventions were excluded if they solely focused on a specific denomination, as these interventions do not necessarily address existential dimensions (Paloutzian & Ellison, 1982), and do not apply to the growing number of people not identifying with a certain tradition (van Leeuwen, Schep-Akkerman, & van Laarhoven, 2013). Reviews concerning a broader group of interventions (e.g., psychosocial, psychological) were excluded to reduce heterogeneity, also if they assessed existential outcomes.

3) Articles focused on adult patients (≥ 18 years) with a cancer diagnosis. No restrictions regarding cancer stage were made, as existential distress is present in all cancer stages as well as in cancer survivors (Vehling et al., 2012; Vehling & Philipp, 2018). If reviews addressed a broader population (e.g., terminal illnesses), a minimum of 80% of primary studies targeting cancer patients was required to qualify for inclusion (cf. Prothero et al., 2018).
4) Articles were published after 1990, given the near absence of review articles published before this date (Smith et al., 2011).
5) Articles were published in English, Dutch, or German.

References were imported into Mendeley Reference Manager (version 1.19.4), and duplicates were removed. To decide which articles to include in the umbrella review, we first screened title and abstract of the search results. In this step, the first 50 references were screened by two reviewers (J.A., G.W.) independently. Near perfect agreement was reached (Cohen's kappa = 0.82). Selection criteria were further clarified, and then the rest of the references was screened by one author only (J.A.). In the second part, this author screened the full text of the remaining references.

Data Extraction

Using a pre-designed form, two types of descriptive data were extracted from the selected reviews, aligning with the two levels of information that should be described and evaluated in umbrella reviews (Pollock, Fernandes, Becker, Featherstone, & Hartling, 2016). First, information regarding the reviews themselves was derived, namely *author* and *year* of publication, *type of review*, *selection criteria* (population; intervention; comparison; outcomes; study type), and *search strategy* (databases; other sources; search date).

Second, descriptive information concerning the included primary studies was retrieved. We extracted general information about the *primary studies* (number of studies; years covered; continent), the included *population* (number of participants; cancer type; cancer stage) and the reviewed *interventions* (concepts; formats; implementing professional; length; control group). Additionally, the available *quality assessments* (tool; evaluation) of primary studies were derived. We initially planned to extract the overall age and gender distribution but omitted this information from the extraction sheet as it was only provided by a minority of the selected reviews. We present the information in tabularized form, supplemented with concise narrative summaries.

Lastly, main findings of the reviews regarding the effectiveness of the interventions were extracted, as well as available outcomes concerning moderators. We present main findings in a table and use a narrative approach to summarize and integrate the remaining

information based on our aims. This narrative approach was chosen over a statistical integration, due to an expected heterogeneity of included reviews and overlap in primary studies, combined with an absence of clear guidelines on how to deal with the resulting statistical complexities (Pollack et al., 2016; Singh, 2012). Effect sizes from meta-analyses of 0.2, 0.5, and 0.8 are displayed as small, moderate, and large, respectively (Cohen, 1988).

Results

Study Selection

Figure 1 presents the process of review selection. Database searching identified 977 articles while searching reference lists identified 40 results. After removing duplicates, 855 unique results remained for title/abstract screening, which in turn left 30 articles for full-text screening. We included eight reviews in the final analysis, all of which had been identified in the initial database search (see Appendix B for excluded reviews after full-text screening).

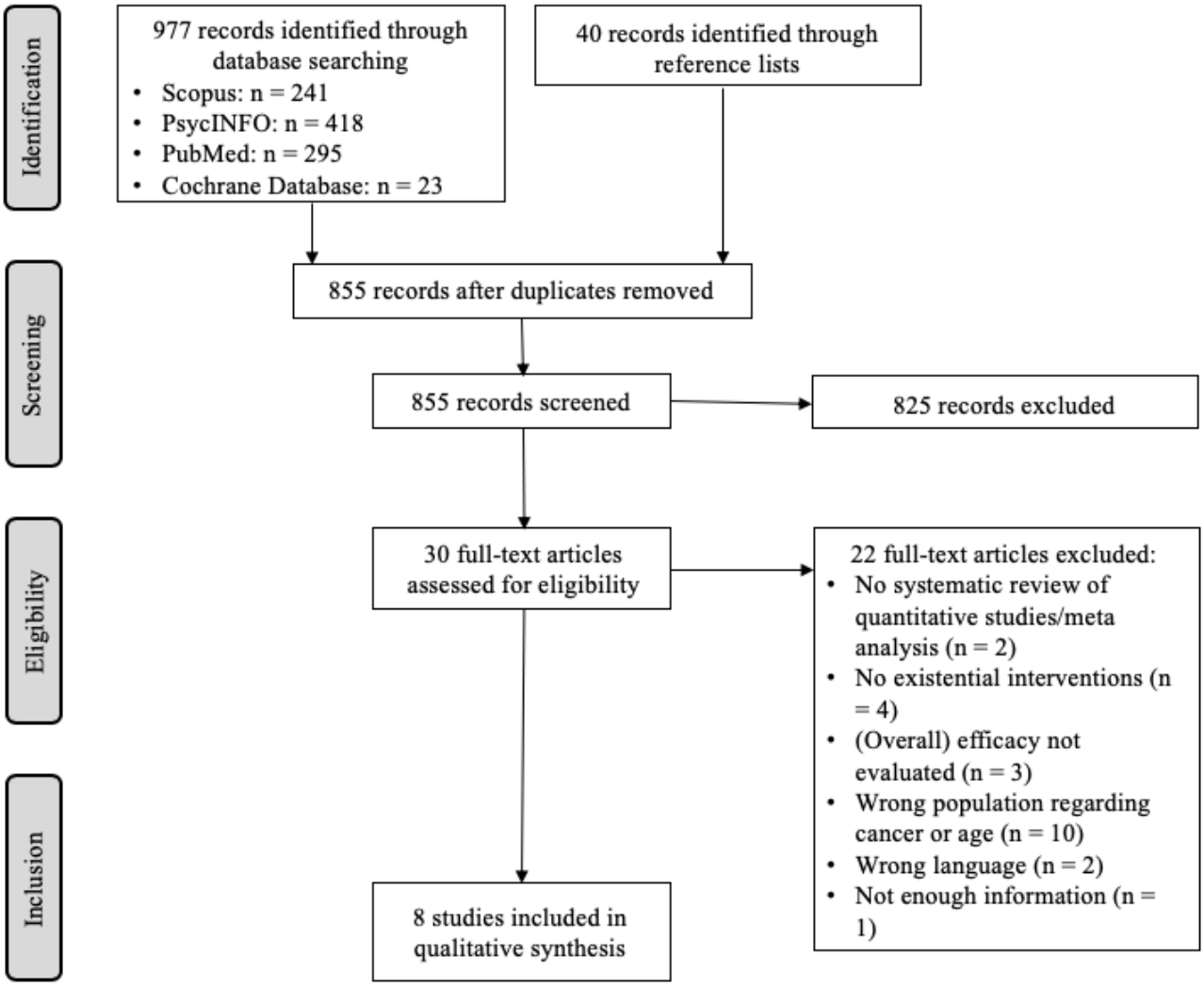

Figure 1. PRISMA flow chart.

Characteristics of Included Reviews and Their Primary Studies

Tables 1 and 2 display the characteristics of the included reviews and their primary studies, respectively. Table 1 moreover shows the correspondence between the authors of the selected reviews and the numbering of the reviews used in the following. All selected reviews were published between 2014 and 2020. Six of the eight selected reviews consisted of or included a meta-analysis ([1]-[4];[6];[7]). One review focused on patients with terminal illnesses but included a large number of studies on advanced cancer patients, and additionally provided separate results for this population ([5]). Of the remaining seven reviews that focused exclusively on cancer patients, three addressed advanced or terminal patients ([3];[6];[7]), whereas the others allowed for the inclusion of various cancer stages. One review synthesized a variety of existential interventions ([1]), while three analyzed dignity interventions ([3];[5];[7]); spiritual and life review interventions were evaluated by two reviews each ([2],[4] and [6],[8], respectively). None of the reviews examined a traditional existential therapy school. Three reviews included only RCTs ([1];[3];[6]), whereas the remaining reviews also allowed for other study designs. Interestingly, the majority of reviews searched a large number of general, medical, and psychological international databases, while only two reviews each also conducted a thorough search of the gray literature ([1];[3]) or contacted professional organizations ([7];[8]).

The number of incorporated primary studies per review ranged from nine to 30, and these primary studies were published between 1981 and 2018. Overall, the selected reviews comprised 77 unique primary studies, 16 of which were included in more than one review (see Appendix C for the unique primary studies and their overlap). The studies were conducted on various continents but no studies from South America or Africa were retrieved. Only one review included primary studies on cancer survivors ([1]). Cancer types were mostly mixed. Notably, although aiming to evaluate different intervention concepts, actually included treatment approaches were very similar among the reviews. As an example, one of the selected reviews addressing life review interventions ([6]) also encompassed studies on dignity, meaning-making, meaning-centered and meaning of life interventions. Solely the three selected reviews that focused on dignity interventions ([3];[5];[7]) did not allow for the inclusion of other intervention concepts. Most interventions were conducted by nursing or psychological personnel and were compared with some form of standard care.

Table 1

Characteristics of Selected Reviews

Author (year)		[1] Bauereiß (2018)	[2] Kruizinga (2016)	[3] Li (2020)	[4] Oh (2014)	[5] Sposato (2016)	[6] Wang (2017)	[7] Xiao (2019)	[8] Zhang (2017)
Type of review		meta-analysis, moderator analyses; qualitative synthesis	meta-analysis, moderator analyses	meta-analysis, subgroup analyses	meta-analysis, moderator analyses	qualitative synthesis	meta-analysis	meta-analysis, qualitative synthesis	qualitative synthesis
Selection criteria	Population	adult (age ≥ 18); any cancer type/stage	adult (age ≥ 18); > 50% cancer patients; any cancer type	current advanced cancer diagnosis	adult (age ≥ 18); any cancer type/stage	adult (age ≥ 18); in palliative care with terminal illness	adult (age ≥ 18); near the end of life	adult (age ≥ 18); cancer diagnosis; under palliative care	confirmed diagnosis of any cancer
	Intervention	existential intervention	spiritual intervention addressing existential issues; narrative approach	dignity therapy	spiritual intervention	dignity therapy	life review intervention; individual format	dignity therapy or psychotherapy	life review; life review program/ intervention/ therapy
	Comparison	active control; attention placebo; no treatment; wait list	no or placebo intervention	standard palliative or psychological care; routine care	active control; no treatment (usual care)	NA	placebo intervention; no intervention	placebo intervention; usual care; pre-post control	placebo treatment; usual care; no therapy
	Outcome	spiritual, psychological, and physical outcomes	QoL or subjective well-being	dignity-related distress; anxiety; depression; QoL	meaning of life; spiritual well-being; anxiety; depression	outcomes related to patient's functioning	spiritual well-being; psychological distress; QoL	dignity; psychological well-being; QoL	hope; self-esteem; QoL; anxiety; depression

	Study type	RCTs	NA	RCTs	RCTs; non-RCTs; meeting quality criteria	RCTs; non-RCTs; pre-post studies	RCTs	RCTs; quasi-experimental studies; no high risk of bias	RCTs; clinically controlled trials
Search strategy	Databases	Central; Cinahl; Embase; Medline; PsycInfo; Psyndex	Cochrane; Embase; PsycInfo; PubMed	Chinese Biomedical Literature; Cochrane; Embase; PubMed; Web of Science	Cinahl; Cochrane; Embase; Medline; 5 Korean databases	Cinahl; Ovid; PubMed	Cinahl; Cochrane; PsycInfo; PubMed; Web of Science	British Nursing Index; China Journal Net; Cinahl; Cochrane; Embase; Medline; Ovid Nursing; PsycArticles; PsycInfo; PubMed; Scopus; Wanfang; Web of Science	Cinahl; Cochrane; Embase; Foreign Medical Retrieval System; Medline; Proquest Digital Dissertations; PsycInfo; Web of Science; 4 Chinese databases
	Other sources	reference lists; WHO ICTRP	NA	reference lists; WHO ICTRP; ClinicalTrials.gov; gray literature	reference lists	NA	reference lists	relevant articles, books, reviews; professional organizations	reference lists; professional organizations; websites; books
	Search date	until 26/01/2018	on 06/07/2014	in 08/2019	until 12/2013	2005 until 02/04/2015	until 02/2017	until 05/2018	until 11/2016

Note. NA = not available; QoL = Quality of Life; RCT = randomized controlled trial; WHO ICTRP = World Health Organization International Clinical Trials Registry Platform.

Table 2

Characteristics of Primary Studies Included in Selected Reviews

		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Primary studies	Number	30 unique RCTs (24 in meta-analysis)	14 articles (11 RCTs; 12 in meta-analysis)	10 RCTs	15 articles (7 RCTs)	10 articles (4 RCTs)	9 articles, (8 unique RCTs, 7 in meta-analysis)	10 articles (8 unique studies; 4 RCTs)	15 articles (9 RCTs)
	Years	1981–2018	2006–2013	2011–2018	1988–2012	2005–2015	2010–2014	2005–2017	2000–2016
	Continent	North America (17); Asia (6); Europe (6); Australia (4)	Asia; Australia; North America; Europe (*n* = NA)	Asia (7); Australia; Europe; North America (all 1)	Asia (9); North America (6)	NA	Asia; Europe; North America (all 3)	Europe (3); Asia (2); Australia, North America (2); Australia (1)	Asia (13); North America (2)
Population	Number participants	4121	2050	904	889	NA	955	NA	899
	Cancer type	NA	no diagnosis mentioned (11); breast, ovarian, cancer with depression (all 1)	mixed (6); lung (2); breast; hepatocellular carcinoma (all 1)	mixed (11); gynecologic (2); breast, melanoma (all 1)	NA	NA	mixed (6); liver, lung (all 1)	multiple cancers (11); single cancer (4)
	Cancer stage	advanced (20); early (4); recurrent (1); survivors (3); mixed (2); mixed with other terminal diseases (2)	advanced (11); unclear (2); min. 1 month diagnosed (1)	advanced (10)	advanced or terminal (11); mixed (3); unclear (1)	8/10 of primary studies focused on advanced cancer	terminal or advanced cancer (8)	advanced (8)	NA

Inter-vention	Concept	supportive-expressive (9); meaning-centered (8); life review (4); dignity (4); hope (3); cognitive-existential (2)	multidisciplinary with spiritual component (3); dignity (2); individual meaning-centered, meaning-making, (oncologist assisted) spiritual, narrative interview, meaning of life, life completion, life review (all 1)	dignity (10)	spiritual nursing (7); meaning-centered (2); (oncologist assisted) spiritual, spiritually focused meditation, meaning of life, meaning-making, logotherapy-based (all 1)	dignity (10); in abbreviated form (1), in addition to standard palliative care (4)	dignity (4); short-term life review, life review, meaning-making, meaning of life, meaning-centered (all 1)	dignity (5); dignity plus standard palliative care (3)	life review (15); with memory prompts (3); with legacy product (11)
	Format	group (15); individual (14); both (1)	NA	individual (10)	group (4); individual (10); both (1)	individual (10)	individual (8)	individual (8)	NA
	Pro-fessional	mixed (14); psychologist (9); nurse (6); medical (1)	psychologist/ psychiatrist (3); oncologist (2); no information (2); spiritual healer (1); co-facilitating chaplain (2)	NA	nurse (10); psychologist (4); dietitian, oncologist (all 1)	NA	NA	team of psychologist, psychiatrist, nurse; nurse, psychologist, researcher (all 2)	researcher (6); nurse (4); psycholo-gist (3); therapist (2)
	Length	1-52 weeks	1 day -12 weeks	10 days - 2 months	1-12 sessions, in 2 days - 16 weeks	NA	1-7 sessions	NA	2-6 sessions, in 5 days - 6 weeks

	Control group	no or usual care (18); supportive therapy (5); massage, relaxation, stress management; psycho-education (all 3); mindfulness-based cancer recovery (1)	NA	routine care (6); standard care (2); standard palliative care, standard psychological care (all 1)	usual care (12); counseling for weight loss, therapeutic massage, supportive group therapy (all 1)	standard palliative care (4); pre-post (6)	standard palliative care (3); usual care (2); routine care, general support, massage (all 1)	pre-post (3); placebo control (2); standard palliative care, usual care, waitlist control (all 1)	usual care (9); general support (2); no therapy (2); regular phone calling, open recreation (all 1)
Quality assess-ment	Tool	Cochrane tool	Cochrane tool	Cochrane tool	Cochrane tool; RoB tool for non-RCTs	Adapted Cochrane tool (RCTs only)	Cochrane tool	JBI critical appraisal checklists	Quality Assessment Tool for Quantita-tive Studies
	Evaluation	moderate RoB (18); high RoB (9); low RoB (3)	unclear RoB (12); high quality (5)	unclear RoB (8); high RoB (2)	NA for individual studies	*n* criteria satisfied: 4/7 (3), 3/7 (1)	min. two criteria unclear or not satisfied (7); high quality (1)	*n* criteria satisfied; RCTs 10/11 (1); 9/11 (2); 8/11 (2); Non-RCTs: 8/9 (2); 7/9 (1); 6/9 (1)	high quality (9); moderate quality (6)

Note. (n) = numbers in brackets represent the number of primary studies for the respective category; NA = not available; *n* = number; RCT = randomized controlled trial; RoB = risk of bias; JBI = Joanna Briggs Institute.

Aim 1: Which Outcomes are Impacted by Existential Interventions?

We extracted all outcome measures that the selected reviews analyzed. Then those outcomes were classified into existential, psychological, and physical outcomes. Outcomes that were related to the existential concerns as outlined in the introduction were classified as existential, and the remaining outcomes were divided into psychological (psychopathology; well-being) and physical outcomes. Table 3 summarizes all findings at post-treatment. Per category of outcomes, main findings are narratively summarized, and complemented with information on effect sizes, the consistency of effects, and follow-up measurements.

Existential outcomes.

Spiritual well-being was the most studied existential outcome in the selected reviews. However, it does not seem to be impacted by existential interventions ([1];[6];[5]). The effect remained non-significant at the 3- and 6-month follow-up included in one review ([1]). Potentially, specific spiritual interventions form an exception; the review on spiritual interventions found a moderate improvement in spiritual well-being ([4]). *Dignity-related distress* was evaluated in reviews concerning dignity interventions ([3];[5];[7]), with (inconsistent) findings suggesting a beneficial effect on at least some facets of dignity-related distress. For instance, in one review, only the existential distress and social support domain of dignity-related distress was impacted, whereas no significant effect was found for the symptom distress, dependency, and peace of mind domain ([7]). Results moreover point to the ability of life review and spiritual interventions to improve *meaning of life*, with small ([6]) to moderate effect sizes ([4]). It should be noted that the effect of life review on meaning became non-significant in a sensitivity analysis, after one study was excluded from the meta-analysis ([6]). Also *hope* appears to be impacted by various existential interventions; effects were mostly small but sustained over longer time periods ([1];[7]). Indeed, meaning and hope emerged as the most consistently impacted existential outcomes.

Psychological outcomes.

Most reviews estimated the effect of existential interventions on different psychopathological outcomes. Independent of the specific interventions reviewed, the included study designs, and the analyzed time points, results were mixed and unstable for depression, anxiety, and general distress. For instance, three reviews found significant improvements in *depression* and *anxiety* ([3];[4];[8]), with a moderate and large effect size in one review, respectively ([4]). Contrarily, in another review, a meta-analysis of RCTs found non-significant effects on depression and anxiety, while only very few quasi-experimental studies suggested improvements ([7]). Similarly, a non-significant effect on depression and

anxiety was found at post-treatment as well as short, medium, and long-term follow-up in yet another review. However, their effects at post-treatment turned significant after the exclusion of studies with ineffective randomization ([1]). In a last review, a small effect on *general distress* was found but became non-significant both at follow-up and when excluding a study that appeared to be driving the effect ([6]). Additionally, initial results suggest that a *desire for hastened death* is not impacted by existential interventions, an effect that stayed non-significant at a 3-month follow-up ([1]).

Concerning the well-being outcomes, the selected reviews consistently indicate that existential interventions positively affect *QoL*, with small ([1];[6]) to moderate effect sizes ([2]). One review found a significant improvement if single- or two-item scales were used, and only a marginally significant effect in studies employing validated scales ([6]). The beneficial effects on QoL were not sustained over longer time periods ([1];[2]). Also, dignity interventions appear to be excluded from this finding; none of the selected reviews on dignity interventions found a beneficial effect on QoL. Furthermore, preliminary results suggest that existential interventions improve patient's *self-esteem* and *self-efficacy*. The improvement in self-efficacy was moderate but not maintained at 3-month follow-up ([1]).

Physical outcomes.

Only one review explicitly included physical outcomes. Neither on *pain* nor on *physical well-being* a significant effect was found at post-intervention or at short-term follow-up. Of the three studies addressing physical outcomes included in the qualitative synthesis, solely one found alleviated levels of pain intensity ([1]). As mentioned above, also the dignity interventions in one review did not affect the *symptom distress* domain of dignity-related distress ([7]).

Table 3

Main Findings Regarding Impacted Outcomes at Post-Treatment

	Intervention	Design/ Type	Outcomes														
			Existential					Psychological							Physical		
								Psychopathology				Well-being					
			EWB	SWB	MoL	DRD	Hope	GD	Depr	Anx	DHD	QoL	S-Ef	S-Es	Pain	PWB	SD
[1]	Existential	RCT/1	✓[10]	**X**[7]			✓[12]		**X~**[14]	**X~**[13]	**X**$_3$	✓[17]	✓[2]		**X~**[5]	**X**[10]	
[2]	Spir.-Exist.	Mix/1										✓[12]					
[4]	Spiritual	Mix/1		✓[8]	✓[6]				✓[9]	✓[6]							
[6]	Life review	RCT/1		**X**[4]	✓~[4]			✓~[5]	**X**[5]	**X**[5]		✓~[6]					
[8]	Life review	Mix/2					✓[4]		✓[7]	✓[3]		✓[6]		✓[3]			
[3]	Dignity	RCT/1				✓[4]			✓[10]	✓[9]		**X**[2]					
[5]	Dignity	Mix/2		**X**[1]		**X**[2]✓[1]			**X**[3]✓[3]	**X**[2]✓[2]		**X**[2]					
[7]	Dignity	Mix/1				✓~[3]	✓[1]		**X~**[3]	**X~**[3]		**X**[5]		✓[2]			**X**[3]

Note. Spir. -Exist. = spiritual interventions addressing existential issues; RCT = only RCTs included; Mix = various study designs included; 1 = meta-analysis included; 2 = solely qualitative synthesis; ✓ = significant effect; **X** = non-significant effect; dashes/crosses in bold represent primary outcomes of the given intervention type; ~ indicates that the finding is unstable, see narrative summaries; [n] = superscript numbers indicate the number of primary studies the result is based on; dark gray outcomes mark a consistent evidence base; EWB = Existential well-being; SWB = Spiritual well-being; MoL = Meaning of life; DRD = dignity-related distress; GD = General distress; Depr = Depression; Anx = Anxiety; DHD = desire for hastened death; QoL = Quality of life; S-Ef = Self-efficacy; S-Es = Self-esteem; PWB = physical well-being; SD = symptom distress.

Aim 2: Which Factors Influence Treatment Outcomes?

Half of the selected reviews included some information on factors determining treatment outcome ([1]-[4]). We extracted all available information concerning moderator- and subgroup analyses from these reviews. We classified them into intervention-, patient-, and study characteristics. Per category, a short summary of the findings is given, followed by specific findings for every reviewed factor.

Intervention characteristics.

Summary. Intervention characteristics appear to influence treatment outcomes. Preliminary evidence favors interventions conducted by nurses. Moreover, intervention intensity appears to play a role, but results differ depending on the exact operationalization of intensity. The selected reviews suggest that outcomes might be differentially affected by intervention concept, format, and setting, but findings are currently too limited and/or inconsistent to draw conclusions.

Intervention concept. The selected reviews showed diverse effects of intervention concept. While life review interventions were found most effective for improving existential well-being and QoL in one review ([1]), meaning-making interventions showed to be more effective than life review or multidisciplinary interventions in improving QoL in another review ([2]). Concerning spiritual interventions, the specific focus of the intervention appears to influence which outcomes are impacted. Primarily religious interventions showed moderate-to-large effects on spiritual well-being and depression, whereas primarily existential interventions demonstrated moderate effects on meaning and small effects on anxiety ([4]).

Intervention format. Also regarding the impact of intervention format divergent results were found. One review did not find a moderating effect of intervention format on any of the outcome variables ([1]), while in another review the impact of intervention format depended on the outcome. An individual approach demonstrated moderate-to-large improvements in depression and spiritual well-being, and group therapies led to a moderate increase in meaning of life ([4]).

Intervention intensity. Intervention intensity was operationalized in different ways. A higher *number of sessions* was found to be advantageous, especially for psychopathological outcomes. In one review, it correlated with the amount of improvement in depression and anxiety ([1]), and in another review it had an impact on the number of outcomes that improved. Specifically, less than seven sessions created moderate reductions in depression, while more than seven sessions indicated moderate-to-large improvements in spiritual well-being, anxiety, and depression ([4]). Contrarily, the *duration of sessions* did not moderate

treatment effects ([1]). Also, for dignity interventions, a shorter *intervention length* appeared favorable. A significant improvement in dignity-related distress was only found in interventions of one month or less ([3]).

Implementing professional. Two reviews tested the impact of the implementing professional, and both favored nurses. In one review, interventions provided by nurses produced the largest effects on QoL in comparison to psychologists, physicians, and mixed groups of professionals [1]. In another review, interventions by (trained) nurses positively and strongly affected spiritual well-being, meaning of life, and depression, while interventions implemented by other professionals only created a small reduction in anxiety ([4]).

Setting. Only one review tested the effect of setting, and found different result depending on the outcome. For hope an inpatient setting was favored and for QoL a home setting was most beneficial ([1]).

Patient characteristics.

One review evaluated the effect of patient characteristics on treatment outcomes. Neither cancer type, nor cancer stage or age of participants demonstrated a significant moderating effect on any of the outcomes ([1]).

Study characteristics.

Summary. Potentially, the beneficial effects of existential interventions are smaller or more inconsistent if evaluated within stricter designs, as operationalized in RCTs or high-quality assessments. Initial results suggest that treatment outcomes might differ between specific cultures or applied measurements, but more research is required.

Quality of studies. Different operationalizations of study quality were used. Two reviews showed less beneficial effects for high quality studies. In one review, no effect on QoL was found when only including studies with *high quality assessments* ([2]), and in another review less outcomes were impacted in studies with a *randomized-controlled design*, and with smaller effect sizes. Specifically, non-RCTs showed large improvements in spiritual well-being, depression, and anxiety, while RCTs produced only small improvements regarding meaning of life and spiritual well-being [4]. Only in a review on dignity interventions, a sensitivity analysis excluding studies with a *high risk of bias* did not find changes in the effects on dignity-related distress ([3]).

Culture. One review suggests that intervention effects might differ between cultures, as studies conducted in non-Western countries produced large effects on QoL, whereas studies conducted in Western countries did not exhibit a significant effect on QoL ([2]).

Questionnaires. One review indicates that the effect of dignity interventions on depression and anxiety might depend on the questionnaire used to assess the respective outcome ([3]).

Discussion

The current umbrella review sought to integrate and evaluate the existing knowledge on the effectiveness of existential interventions in adult cancer patients. First, we aimed to identify which outcomes are influenced by existential interventions. The existential outcomes of meaning and hope were positively affected by existential interventions, whereas dignity-related distress and spiritual well-being were only influenced by the respective intervention type. Findings concerning psychological outcomes were inconsistent with regard to psychopathological variables, but relatively consistent with regard to improvements in well-being variables. Physical outcomes were not impacted by existential interventions. Our second aim was to determine potential factors impacting treatment outcomes. Initial findings suggest that the way interventions are delivered, namely by nurses and more intensely, plays a role in their effectiveness, and that stricter study designs lead to less significant findings. Patient characteristics did not influence treatment outcomes.

Outcomes Influenced by Existential Interventions

Four noteworthy patterns emerged from our umbrella review. First, our findings indicate that existential interventions exhibit an intervention-specific effect on existential outcomes. For instance, in our review, spiritual well-being was only improved by spiritual interventions and dignity-related distress was reduced by dignity interventions. Similarly, primarily religious interventions enhanced spiritual well-being, and primarily existential interventions heightened meaning. Also in a meta-analysis by Park et al. (2019), psychosocial interventions for cancer patients that were specifically designed to address meaning had the strongest effect on this outcome. Notably, in the current review, meaning was impacted by different intervention approaches, which might be explained by its multi-component structure consisting of purpose (i.e., valued goals), coherence (i.e., events fitting together), and significance (i.e., life feeling precious; Martela & Steger, 2016). Thereby, meaning-centered therapies might enhance meaning by addressing its purpose component, life review interventions by targeting its coherence component, and spiritual interventions by focusing on the significance component.

Second, our findings suggest that existential interventions might have a stronger effect on positive mental health than on mental illness, as meaning, hope, QoL, and self-efficacy were the most consistently improved outcomes in the current review. Positive mental health

and mental illness have been conceptualized as two related but separate factors that are differently affected by interventions (Westerhof & Keyes, 2010). Existential interventions might be especially capable of improving positive mental health, as they redefine cancer patients' existential challenges as possibilities to live a fulfilling life. As the effects were typically exclusive to post-intervention assessments and were not found in dignity interventions that are designed for terminally ill patients, this process might become more difficult with disease progression.

Third, the inconsistent effects on psychopathology might signify its distal position in comparison to existential variables. As psychopathology is thought to be generated by maladaptive coping with existential distress (Yalom, 1980), it might only improve subsequently to existential outcomes. Indeed, some existential therapies explicitly describe psychological distress as a secondary outcome (Vos & Vitali, 2018), and the effect of meaning-centered psychotherapy and life review therapy on depression has been found to be mediated by meaning in life (Rosenfeld, Cham, Pessin, & Breitbart, 2018; Westerhof, Bohlmeijer, Van Beljouw, & Pot, 2010). Similarly, in the current umbrella review, the three reviews that found significant decreases in depression and anxiety demonstrated beneficial effects on all existential outcomes (Li et al., 2020; Oh et al., 2014; Zhang et al., 2017), and a higher number of sessions was related to a stronger relieve of psychopathology. Alternative explanations are possible. Theoretically, psychological and existential distress are related but separate constructs (Vehling et al., 2017), which might require different intervention types. Relatedly, factors other than existential distress might cause psychopathology and might need to be addressed in interventions. Methodologically, some of the selected reviews noted that the non-significant effects on psychopathology might be due to low baseline levels of psychological distress or an ineffective randomization regarding psychopathology (Bauereiß et al., 2018; Xiao et al., 2019).

Fourth, our findings suggest that physical outcomes are not affected by existential interventions, though these outcomes were only analyzed by a few of the selected reviews. From an existential point of view, this finding is not entirely surprising. Physical distress is thought to induce existential concerns, as it reveals the transient nature of our existence (Yalom, 1980). Indeed, the association between cancer patient's physical status and different types of distress is to a large degree explained by existential factors, such as a loss of dignity and meaning (Guerrero-Torrelles et al., 2017; Jim & Andersen, 2007; Vehling & Mehnert, 2014). As existential interventions aim at cultivating the patient's ability to cope with these existential topics adaptively (Correia et al., 2016; Vos et al., 2015), they should reduce the

existential distress that might be caused by physical deterioration, but not physical distress itself. However, it might be important to more clearly distinguish between physical deterioration and its meaning to patients. Also, the possibility that non-significant effects are due to homogeneous samples with regard to physical distress should be excluded in future studies.

Factors Impacting Treatment Outcomes

Research on the factors that impact treatment outcomes is still scarce and only allows for tentative conclusions. In general, our findings support our previous conclusions (e.g., intervention-specificity, psychopathology as secondary outcome; see above) and are in line with general research findings (e.g., effect of study quality; Jüni et al., 2016).

Two findings require further attention. First, our review suggests that patient characteristics are negligible. Although this finding corresponds with literature showing that cancer patients of all stages experience existential distress (Vehling et al., 2012) and with theoretical predictions (Yalom, 1980), the true picture might be more complicated. Again, the samples might have been too homogeneous to find variations depending on cancer type or stage. Further, it is likely that patient characteristics interact with intervention characteristics. As an example, people with advanced cancer might benefit more from less intense interventions, individual formats, or inpatient settings (Applebaum et al., 2011). Moreover, factors that are not related to a cancer diagnosis but appear to influence cancer patients' reactions to existential givens (e.g., attachment, personality; Chochinov et al., 2006; Vehling et al., 2019) have not been investigated so far. Hence, more detailed research on the influence of various patient characteristics is necessary before concluding that they do not impact treatment outcomes.

Second, nurses emerged to be superior to other intervention providers, which might hint at the importance of the therapeutic relationship. Nurses appreciate a "deep knowledge" of their patients and appear to "be present" in the connection with them (Wiechula et al., 2016). Correspondingly, patients report to be especially satisfied with nurses in terms of provided support and time (Laurant et al., 2008). Indeed, a therapeutic relationship characterized by "taking time" for reflection seems to be a crucial working mechanism of meaning-centered therapies (Guerrero-Torrelles et al., 2017), and also many practices that are common to existential interventions rely on the therapeutic encounter (e.g., relational, phenomenological; Vos et al., 2015). Thus, investigating characteristics of the therapeutic relationship in predicting treatment outcomes might be fruitful.

Strengths & Limitations

A strength of our review is its high level of synthesis. By summarizing and evaluating the findings of previous reviews, we created a comprehensive overview of the effectiveness of existential interventions. The broad and extensive search strategy reduced the chance of missing important reviews, a strategy that appeared to be successful given that all selected reviews were identified within the database search. The large number of primary studies and their relatively low overlap further illustrate the added value of the current method.

Simultaneously, the current paper is limited by both the selected reviews with their primary studies and its own methodology. With regard to the former, the selected reviews included primary studies with unclear, moderate, or high risk of bias, and lacked data on some of the extracted information. These typical shortcomings of reviews hinder complete reporting in umbrella reviews and may carry errors to the next level of synthesis (Pollock et al., 2016). Moreover, the selected reviews typically lacked an evaluation of long-term effects. This paucity might be due to the often very ill study population, which renders longer study periods neither feasible nor ethical. The broad inclusion criteria concerning intervention concepts, which made analyzing the evidence base for each intervention type separately impossible, present another limitation on the level of the included reviews.

On the level of the current umbrella review, the lack of screening and data-extraction by two reviewers might have lowered the reliability of the results. A high interrater reliability was achieved for the first part of the screening but might not generalize to the later stages of the selection process. In addition, we did not evaluate the quality of the included reviews, which would be necessary to gauge its potential impact on our conclusions (Shea et al., 2017). Lastly, we excluded reviews on qualitative treatment evaluations. This decision reduced heterogeneity but limits the conclusion as findings of quantitative and qualitative studies do not always correspond (Sposato, 2016).

Implications for Clinical Practice

The current umbrella review suggests that existential interventions are applicable to cancer patients of all ages, cancer types, and cancer stages. Patients might have most advantages if interventions are conducted by nurses. The majority of existential interventions appears to promote patient's positive mental health, so that especially patients suffering of a lack of those positive states might benefit. If patients physical state allows, and with elevated levels of psychological distress, offering a greater number of sessions seems advisable. Lastly, it might be helpful to select an intervention that focusses on the existential topics most stressful for a patient. This recommendation might be especially important if it proves necessary to alleviate existential distress for a subsequent improvement in psychopathology.

However, this approach would simultaneously necessitate a more extensive screening for specific existential concerns experienced by patients, and even more time resources of clinicians, who already experience high workload as a barrier to the implementation of existential interventions (Polacek, Reisch, Saracino, Pessin, & Breitbart, 2019). More studies highlighting the cost-effectiveness of existential interventions (van der Spek et al., 2018) might increase the likelihood of supportive institutional environments.

Avenues for Future Research

Besides studies on the economic value of existential interventions, we already pointed to interesting avenues for future research. For example, four patterns emerged from our review and might be specified in future studies, namely: are effects on existential outcomes intervention-specific? Do existential interventions primarily target positive mental health? Are changes in existential outcomes required to alleviate psychopathology? Do existential interventions impact physical outcomes? Answering these questions in detail will require more frequent measurements, the assessment of a larger variety of existential outcomes that have been neglected so far (e.g., death anxiety, existential loneliness), and stricter inclusion criteria of future systematic reviews.

In this section we want to formulate two further ideas for research. First, a culturally informed approach is recommended. Only one of the selected reviews tested and supported a potential role of culture (Kruizinga et al., 2016). Even though existential concerns are by definition universal, cultures may vary in their proneness for different existential anxieties as well as the coping strategies offered (Sullivan, 2016). In a similar vein, the ideal of "authenticity" likely reflects Western influences (Vos et al., 2015). Clarifying universal versus culturally specific experiences and coping strategies for various existential concerns will help to adapt or choose interventions that fit the patient's cultural background.

Second, it is crucial to determine potential adverse effects. Bauereiß et al. (2018) could not identify any primary studies systematically analyzing them. Theoretically, however, the exploration of existential topics might trigger existential distress if defense mechanisms are still functioning (Yalom, 1980), or could aggravate temporary existential distress (Tillich, 1952). Indeed, in a recent meta-synthesis of narrative approaches in cancer patients, a negative impact of these interventions in form of increased worry and depression was synthesized as an important theme (Yang et al., 2020). Hence, identifying adverse effects will ensure a safe implementation of existential interventions in a vulnerable population.

Conclusion

This umbrella review indicates that existential interventions have a beneficial impact on positive existential and psychological outcomes. Effects on psychopathology and physical distress are inconsistent and non-significant, respectively. Potentially, the improvement of specific existential outcomes depends on the focus of the intervention and subsequently impacts upon psychopathology. Future research should further clarify these hypotheses and extend current evidence by investigating the culture-specificity and adverse effects of existential interventions.

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Appendix A

Table A1

Overview of Search Strategy

Database	Keywords	Manual limits
PsycINFO	(Cancer OR Tumo#r# OR neoplasm OR "end of life" OR "palliative care" OR "life-threatening disease#" OR "life-threatening illness" OR "life-threatening illnesses" OR "terminal illness" OR "terminal illnesses" OR "terminally ill") AND **(**Daseinsanalysis OR Daseinsanalyse OR Logotherapy OR "existential-humanistic" OR "existential-phenomenological" OR "supportive-expressive" OR "experiential-existential" OR "cognitive-existential" OR "meaning-based" OR "meaning-centered" OR "life review" OR "life completion" OR reminiscence OR "supportive-affective" OR ((Existential* OR existential# OR spiritual* OR spiritual# OR holistic* OR holistic# OR meaning-making OR "meaning in life" OR "meaning of life" OR "purpose in life" OR "purpose of life" OR "life purpose" OR narrative OR dignity OR forgiveness OR hope OR hopelessness OR "death anxiety" OR "death attitude#" OR "attitude# to death" OR demorali?ation) N3 (Intervention OR Therapy OR Treatment OR Psychotherapy OR counseling OR program))) AND (meta-analysis OR "systematic review" OR "literature review" OR "systematic overview")	Publication year: 1990-2020; Expanders: apply related words; apply related subjects
PubMed	((((Cancer OR Tumor OR "end of life" OR "palliative care" OR "life threatening disease" OR "life threatening diseases" OR "life threatening illness" OR "life threatening illnesses" OR "terminal illness" OR "terminal illnesses" OR "terminally ill"))) AND ((Daseinsanalysis OR Daseinsanalyse OR "Logotherapy" OR existential-humanistic OR existential-phenomenological OR supportive-expressive OR experiential-existential OR cognitive-existential OR meaning-based OR meaning-centered OR "life review" OR "life completion" OR reminiscence OR supportive-affective OR "death anxiety" OR "death attitudes" OR "demoralization" OR "hopelessness" OR "meaning in life" OR "meaning of life" OR "purpose in life" OR "life purpose" OR "existential intervention" OR "existential interventions" OR "existential therapy" OR "existential therapies" OR "existential psychotherapy" OR "spiritual intervention" OR "spiritual interventions" OR "spiritual treatment" OR "spiritual treatments" OR "spiritual therapy" OR "spiritual therapies" OR "spiritual psychotherapy" OR "spiritual program" OR "spiritual counseling" OR "holistic intervention" OR "holistic interventions" OR "holistic treatment" OR "holistic treatments" OR "holistic therapy" OR "holistic therapies" OR "holistic program" OR "holistic programs" OR "holistic counseling" OR "meaning-making intervention" OR "meaning-making interventions" OR "meaning in	none

	life intervention" OR "narrative intervention" OR "narrative interventions" OR "narrative therapy" OR "narrative therapies" OR "narrative psychotherapy" OR "narrative counseling" OR "dignity intervention" OR "dignity interventions" OR "dignity therapy" OR "dignity psychotherapy" OR "dignity program" OR "forgiveness intervention" OR "forgiveness interventions" OR "forgiveness treatment" OR "forgiveness therapy" OR "forgiveness program" OR "forgiveness programs" OR "hope intervention" OR "hope interventions" OR "hope treatment" OR "hope therapy" OR "hope program" OR "hope counseling"))) AND ((meta-analysis OR "systematic review" OR literature review OR "systematic overview")) AND (("1990/01/01"[PDat] : "2020/12/31"[PDat]))	
SCOPUS	TITLE-ABS-KEY ((Cancer* OR Tumor* OR neoplasm* OR “end of life” OR “palliative care” OR “life-threatening disease*” OR “life-threatening illness*” OR “terminal* ill*”) AND **(**Daseinsanalys* OR Logotherap* OR “existential-humanistic” OR “existential-phenomenological” OR “supportive-expressive” OR “experiential-existential” OR “cognitive-existential” OR “meaning-based” OR “meaning-centered” OR “life review” OR “life completion” OR reminiscence OR “supportive-affective” OR ((Existential* OR spiritual* OR holistic* OR meaning-making OR “meaning in life” OR “meaning of life” OR “purpose in life” OR “purpose of life” OR “life purpose” OR narrative OR dignity OR forgiveness OR hope* OR “death anxiety” OR “death attitude*” OR “attitude* to* death” OR demoralization) W/3 (Intervention* OR Therap* OR Treatment* OR Psychotherap* OR counseling OR program*))) AND (meta-analysis OR “systematic review” OR “literature review” OR “systematic overview”)) AND PUBYEAR > 1990 AND (LIMIT-TO (LANGUAGE , "English") OR LIMIT-TO (LANGUAGE , "German")) OR LIMIT-TO (LANGUAGE , "Dutch"))	none
Cochrane	(Cancer OR Tumor OR neoplasm OR “end of life” OR “palliative care” OR “life threatening disease” OR “life threatening diseases” OR “life threatening illness” OR “life threatening illnesses” OR “terminal illness” OR “terminal illnesses” OR “terminally ill”) AND **(**Daseinsanalys* OR Logotherapy OR “existential humanistic” OR “existential phenomenological” OR “supportive expressive” OR “experiential existential” OR “cognitive existential” OR “meaning based” OR “meaning centered” OR “life review” OR “life completion” OR reminiscence OR “supportive affective” OR ((Existential* OR spiritual* OR holistic* OR meaning-making OR	Search in title/ abstract/ keywords; Publication date between January 1990 and April 2020

meaning* OR “purpose in life” OR “purpose of life” OR “life purpose” OR narrative OR dignity OR forgiveness OR hope* OR “death anxiety” OR “death attitude” OR “attitude to death” OR demoralization) near/3 (Intervention? OR Therapy OR Treatment? OR Psychotherapy OR counseling OR program?)))

Appendix B

Table B1

References Excluded After Full-Text Screening, Ordered by Reason for Exclusion

Reason for exclusion	Reviews excluded for that reason
No systematic review/ meta-analysis	Vehling, S., & Philipp, R. (2018). Existential distress and meaning-focused interventions in cancer survivorship. *Current Opinion in Supportive and Palliative Care*, *12*(1), 46-51. Bentley, B., O'Connor, M., Shaw, J., & Breen, L. (2017). A narrative review of dignity therapy research. *Australian Psychologist*, *52*(5), 354-362.
No existential interventions	Xing, L., Guo, X., Bai, L., Qian, J., & Chen, J. (2018). Are spiritual interventions beneficial to patients with cancer?: a meta-analysis of randomized controlled trials following PRISMA. *Medicine*, *97*(35). e11948 Hulett, J. M., & Armer, J. M. (2016). A systematic review of spiritually based interventions and psychoneuroimmunological outcomes in breast cancer survivorship. *Integrative Cancer Therapies*, *15*(4), 405- 423. Taylor, E. J. (2005, August). Spiritual complementary therapies in cancer care. In *Seminars in oncology nursing* (Vol. 21, No. 3, pp. 159-163). WB Saunders. Li, P., Guo, Y. J., Tang, Q., & Yang, L. (2018). Effectiveness of nursing intervention for increasing hope in patients with cancer: a meta-analysis. *Revista Latino-Americana de Enfermagem*, *26*.
Efficacy of interventions not evaluated	Grossman, C. H., Brooker, J., Michael, N., & Kissane, D. (2018). Death anxiety interventions in patients with advanced cancer: A systematic review. *Palliative Medicine*, *32*(1), 172-184. Keall, R. M., Clayton, J. M., & Butow, P. N. (2015). Therapeutic life review in palliative care: a systematic review of quantitative evaluations. *Journal of Pain and Symptom Management*, *49*(4), 747-761. Movafagh, A., Heidari, M. H., Abdoljabbari, M., Mansouri, N., Taghavi, A., Karamatinia, A., ... & Ghazi, M. (2017). Spiritual therapy in coping with cancer as a complementary medical preventive practice. *Journal of Cancer Prevention*, *22*(2), 82-88.
Wrong population (cancer or age)	Huang, M. H., Ruey-Hsia, W. A. N. G., & Hsiu-Hung, W. A. N. G. (2020). Effect of life review on quality of life in terminal patients: a systematic review and meta-analysis. *Journal of Nursing Research, 28*(2), e83. Kang, K. A., Han, S. J., Lim, Y. S., & Kim, S. J. (2019). Meaning-centered interventions for patients with advanced or terminal cancer: a meta-analysis. *Cancer Nursing*, *42*(4), 332-340. Chen, J., Lin, Y., Yan, J., Wu, Y., & Hu, R. (2018). The effects of spiritual care on quality of life and spiritual well-being among patients with terminal illness: a systematic review. *Palliative Medicine*, *32*(7), 1167-1179. Chen, Y., Xiao, H., Yang, Y., & Lan, X. (2017). The effects of life review

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Wrong language	Oh, P. J., & Shin, S. R. (2014). Effects of dignity interventions on psychosocial and existential distress in terminally ill patients: a meta-analysis. *Journal of Korean Academy of Nursing*, *44*(5). Oh, P. J., & Kim, Y. H. (2012). Meta-analysis of spiritual intervention studies on biological, psychological, and spiritual outcomes. *Journal of Korean Academy of Nursing*, *42*(6).
Not enough information provided	Kaplar, M. E., Wachholtz, A. B., & O'brien, W. H. (2004). The effect of religious and spiritual interventions on the biological, psychological, and spiritual outcomes of oncology patients: A meta-analytic review. *Journal of Psychosocial Oncology*, *22*(1), 39-49.

Appendix C

Table C1

Unique Primary Studies Included in Umbrella Review and Their Overlap

			Unique primary studies		Selected reviews					
N.	First author (year)	Title	Bauer-eiß (2018)	Krui-zinga (2016)	Li (2020)	Oh (2014)	Sposato (2016)	Wang (2017)	Xiao (2019)	Zhang (2017)
1	Kissane (2007)	Supportive-expressive group therapy for women with metastatic breast cancer: survival and psychosocial outcome from a randomized controlled trial.	✓							
2	Classen (2008)	Supportive-expressive group therapy for primary breast cancer patients: a randomized prospective multicenter trial.	✓							
3	Butler (2009)	Effects of supportive-expressive group therapy on pain in women with metastatic breast cancer.	✓							
4	Spiegel (1981)	Group support for patients with metastatic cancer. A randomized outcome study.	✓							
5	Vuksanovic (2017)	Dignity therapy and life review for palliative care patients: a randomized controlled trial.	✓		✓				✓	
6	Lloyd-Williams (2013)	A pilot randomised controlled trial to reduce suffering and emotional distress in patients with advanced cancer	✓	✓						
7	Giese-Davis (2002)	Change in emotion- regulation strategy for women with metastatic breast cancer follow-ing supportive-expressive group therapy.	✓							
8	Breitbart (2015)	Meaning-centered group psychotherapy: an effective intervention for improving psychological well-being in patients with	✓							

		advanced cancer.								
9	Herth (2000)	Enhancing hope in people with a first recurrence of cancer.	✓							
10	Lee (2006)	Meaning- making intervention during breast or colorectal cancer treatment improves self-esteem, optimism, and self-efficacy.	✓							
11	Duggleby (2007)	Living with hope: initial evaluation of a psychosocial hope intervention for older palliative home care patients.	✓							
12	Ando (2010)	Efficacy of short-term life-review interviews on the spiritual well-being of terminally ill cancer patients.	✓					✓		✓
13	Henry (2010)	The meaning-making intervention (MMi) appears to increase meaning in life in advanced ovarian cancer: a randomized controlled pilot study.	✓	✓		✓		✓		
14	Chochinov (2011)	Effect of dignity therapy on distress and end-of-life experience in terminally ill patients: a randomised controlled trial.	✓	✓	✓		✓	✓	✓	
15	Xiao (2013)	Effect of a life review program for Chinese patients with advanced cancer: a randomized controlled trial.	✓	✓				✓		✓
16	Tabrizi (2016)	Effects of supportive-expressive discussion groups on loneliness, hope and quality of life in breast cancer survivors: a randomized control trial	✓							
17	Mok (2012)	The meaning of life intervention for patients with advanced-stage cancer: development and pilot study	✓	✓		✓		✓		
18	Hall (2011)	A novel approach to enhancing hope in patients with advanced cancer: a randomised phase II trial of dignity therapy.	✓	✓			✓	✓	✓	

19	Rustøen (1998)	Nursing intervention to increase hope and quality of life in newly diagnosed cancer patients.	✓					
20	Gagnon (2015)	A cognitive-existential intervention to improve existential and global quality of life in cancer patients: a pilot study.	✓					
21	Julião (2014)	Efficacy of dignity therapy on depression and anxiety in Portuguese terminally ill patients: a phase II randomized controlled trial	✓			✓	✓	✓
22	Julião (2013)	Efficacy of dignity therapy for depression and anxiety in terminally ill patients: early results of a randomized controlled trial	✓			✓	✓	✓
23	Breitbart (2010)	Meaning-centered group psychotherapy for patients with advanced cancer: a pilot randomized controlled trial.	✓		✓			
24	Carlson (2016)	Randomized-controlled trial of mindfulness-based cancer recovery versus supportive expressive group therapy among distressed breast cancer survivors (MINDSET): long-term follow-up results.	✓					
25	Carlson (2013)	Randomized controlled trial of mindfulness-based cancer recovery versus supportive expressive group therapy for distressed survivors of breast cancer (MINDSET).	✓					
26	Ho (2016)	Managing cancer and living meaningfully (CALM): randomised feasibility trial in patients with advanced cancer.	✓					
27	Ho (2016)	Randomized controlled trial of supportive-expressive group therapy and body-mind-spirit intervention for Chinese non-metastatic breast cancer patients.	✓					

28	Ye (2017)	Effect of a mentor-based, supportive-expressive program, be resilient to breast cancer, on survival in metastatic breast cancer: a randomised, controlled intervention trial.	✓			
29	Lloyd-Williams (2018)	Pilot randomised controlled trial of focused narrative intervention for moderate to severe depression in palliative care patients: DISCERN trial	✓			
30	Van der Spek (2017)	Efficacy of meaning- centered group psychotherapy for cancer survivors: a randomized controlled trial.	✓			
31	Goodwin (2001)	The effect of group psychosocial support on survival in metastatic breast cancer.	✓			
32	Classen (2001)	Supportive-expressive group therapy and distress in patients with metastatic breast cancer: a randomized clinical intervention trial.	✓			
33	Breitbart (2012)	Pilot randomized controlled trial of individual meaning-centered psychotherapy for patients with advanced cancer.		✓	✓	✓
34	Daly (2013)	Clinical trial of a supportive care team for patients with advanced cancer.		✓		
35	Jafari (2013)	Spiritual therapy to improve the spiritual well-being of Iranian women with breast cancer: a randomized controlled trial.		✓		
36	Kristeller (2005)	Oncologist Assisted Spiritual Intervention Study (OASIS): patient acceptability and initial evidence of effects.		✓	✓	
37	Piderman (2014)	Spiritual quality of life in advanced cancer patients receiving radiation therapy.		✓		
38	Rummans	Impacting quality of life for patients with		✓		

	(2006)	advanced cancer with a structured multidisciplinary intervention: a randomized controlled trial.				
39	Steinhauser (2008)	Do preparation and life completion discussions improve functioning and quality of life in seriously ill patients? Pilot randomized control trial	✓			
40	Vega (2010)	Combined therapy versus usual care for the treatment of depression in oncologic patients: a randomized controlled trial.	✓			
41	Hall (2012)	Feasibility, acceptability and potential effectiveness of dignity therapy for older people in care homes: A phase II randomized controlled trial of a brief palliative care psychotherapy.		✓		
42	Xingming (2016)	Analysis of the Impact of Dignity Therapy on the Curing Hope and Negative Emotion for the Patients with Advanced Breast Cancer.		✓		
43	Zhiyang (2015)	Effects of dignity therapy on self-esteem status and negative emotions of lung cancer patients.		✓		✓
44	Rongming (2016)	Effects of dignity therapy on psychological and physiological functions of patients with advanced community hepatocellular carcinoma.		✓		
45	Xiaodong (2018)	Effects of dignity therapy on life satisfaction and psychological condition among hospitalized patients with advanced cancer.		✓		
46	En-gui (2018)	Dignity therapy and life review intervention on dignity and psychological status of hospitalized patients with advanced cancer.		✓		
47	Yanli (2018)	Influence of dignity therapy on dignity and		✓		

		negative emotion of patients with advanced lung cancer.		
48	Li (2018)	Effect of dignity therapy on psychological status and coping style of patients with advanced cancer.	✓	
49	Cole (2012)	A randomised clinical trial of the effects of spiritually focused meditation for people with metastatic melanoma.		✓
50	Djuric (2009)	A pilot trial of spirituality counseling for weight loss maintenance in African American breast cancer survivors.		✓
51	Koo (2008)	*Development and effect of logotherapy-based resilience promotion program for gynecologic cancer women* (Unpublished dissertation).		✓
52	Kim (2006)	Effects of spirituality promoting intervention on spirituality, social support and fighting spirit among the cancer patients.		✓
53	Chung (2005)	*Effects of spiritual nursing care on spiritual well-being, depression, anxiety and pain in terminal patients with cancer* (Unpublished dissertation).		✓
54	Kim (2004)	Effect of spiritual nursing intervention on spiritual well-being and depression of hospice patients.		✓
55	Yoon (2004)	*Development and effects of holistic hospice nursing intervention program for in-patient of hospice palliative care unit.*		✓
56	Yoon (2004)	The effect of spiritual nursing intervention on the meaning of life and spiritual distress of the terminal cancer patients.		✓
57	Yoon (2001)	The effect of spiritual nursing intervention on		✓

		pain and anxiety of the hospice patients.				
58	Kim (1988)	*Effect of spiritual nursing intervention on pain in patients with cancer* (Unpublished dissertation).	✓			
59	Bernat (2015)	Piloting an abbreviated dignity therapy intervention using a legacy-building web portal for adults with terminal cancer: A feasibility and acceptability study.		✓		
60	Chochinov (2005)	Dignity therapy: A novel psychotherapeutic intervention for patients near the end of life.		✓	✓	
61	Houmann (2014)	A prospective evaluation of dignity therapy in advanced cancer patients admitted to palliative care.		✓	✓	
62	Johns (2013)	Translating dignity therapy into practice: Effects and lessons learned.		✓		
63	Julião (2017)	Effect of dignity therapy on end-of-life psychological distress in terminally ill Portuguese patients: a randomized controlled trial.			✓	
64	Hongping (2011)	Effect of life dignity therapy on dignity-related pressure and hoping level in liver cancer patients			✓	
65	Chen (2011)	Effect of life review interviews on mental health and hoping level of pancreatic cancer patients.				✓
66	Chen (2011)	Effectiveness of Lire Review in Increasing Self-transcendence, Hope, and Spiritual Well-being of Patients with Cancer.				✓
67	Jin (2014)	Effect of life review interviews on mental health of cancer patients in recovery period.				✓
68	Shi (2013)	Influence of care approach of life review on patients with advanced gastrointestinal cancer				✓
69	Wang (2015)	Effects on self-esteem and hope among				✓

		cervical cancer patients with life review intervention.	
70	Yu (2014)	Effect of a life review interview on the quality of life patients with advanced cancer.	✓
71	Chen (2016)	Effects on death anxiety among malignant tumor patients with life review intervention.	✓
72	Ando (2006)	Preliminary study of reminiscence therapy on depression and self-esteem in cancer patients	✓
73	Batton (2000)	The Effect of an Activity-based Intervention on the Psychosocial Adjustment of Cancer Patients.	✓
74	Hoffman (2003)	Subjective Well-being Before and After a Life Review in Women Living with Cancer.	✓
75	Liu (2008)	The Effects of a Life Album on Depression and Meaning of Life in Cancer Patients Receiving Hospice and Palliative Care.	✓
76	Shi (2015)	Analysis of the effect of life review nursing intervention on advanced gastrointestinal cancer patients.	✓
77	Lin (2016)	The research of life review intervention on psychological status of patients with end-stage cancer application.	✓

Note. N = Number of unique primary study; ✓ = the selected review included the given primary study.