Master Thesis: Systematic Literature Review

Flourishing after Trauma: The Role of Meaning in Life for Posttraumatic Growth.

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Abstract

Many people experience a traumatic event at least once during life. Apart from negative mental health consequences, trauma research also detected positive changes and aspects of well-being in individuals after facing adversity. Despite of suffering and struggles in the aftermath of trauma, some people show significant progress in psychological functioning that expresses itself inter alia in an increased sense of connectedness to others. There is consensus on the existence of this phenomenon called posttraumatic growth (PTG). However, information is lacking about what factors contribute to this favourable process. Research suggests meaning in life (MIL) to be of relevance for successful coping and flourishing after trauma. The present literature review is the first one to summarize quantitative evidence on the relationship between MIL and PTG. An overview of 14 cross-sectional studies found small to moderate associations between both concepts independent of the type of trauma, across different self-report instruments and beyond sociodemographic and other control variables. Global meaning and presence of meaning show consistent positive associations, while contradictory findings appear regarding the search for meaning. While the results call for further research on causal effects, the main findings support the idea of implementing MIL and PTG in clinical practice. More specifically, psychological emergency and health care professionals should be educated on the importance of these concepts to prevent negative mental health outcomes and enhance well-being after traumatic exposure.

Introduction

The majority of the general population is exposed to a traumatic event at least once during life: While Knipscheer at al. (2020) recently measured a 70% lifetime prevalence of potentially traumatic events in the Dutch population, even 90% of participants were found to be affected by traumatic exposure in a U.S. study (Kilpatrick, 2013). The term *trauma* derives from the Greek language and means "injury" (Wirtz, 2019). The Diagnostic and Statistical Manual of Mental Disorders (DSM-5) of the American Psychiatric Association (APA, 2013) defines trauma as a confrontation with actual or threatened death, severe injury or sexual assault. A person may be directly exposed to a traumatic event, but can be equally affected by witnessing another person being exposed to trauma or by learning from a traumatic event that happened to close others. Alternatively, one may also be traumatized when repeatedly confronted with "aversive details of the traumatic event(s)" (APA, 2013). Although not everyone who experiences a traumatic situation develops a posttraumatic stress disorder (PTSD), various negative mental health outcomes are known to occur (Substance Abuse and Mental Health Services Administration, 2014). Meanwhile, trauma research also detected positive changes after traumatic exposure (Linley & Joseph, 2004; Tedeschi & Calhoun, 1995). In light of these findings, the concepts of meaning in life (MIL) and posttraumatic growth (PTG) increasingly gain in relevance. They appear to function as protective factors, to facilitate coping and to enhance well-being during and beyond times of adversity (Weathers et al., 2016). The present study aims to summarize the ongoing research on the relationship between MIL and PTG in a systematic literature review. The following paragraphs will first define both concepts. Afterwards, their theoretical relationship and first empirical findings are discussed.

Posttraumatic Growth

Research suggests that a traumatic experience results in a sudden change of an overall positive to a shattered perspective on the world (Janoff-Bulman, 1989). The once natural view of oneself being a worthy individual as well as of the world as a benevolent, meaningful place is challenged to its core. Psychological distress and posttraumatic symptoms are possible reactions to traumatic exposure (Bohlmeijer & Hulsbergen, 2018). However, some of those affected also report positive changes and progress in psychological functioning defined as posttraumatic growth (Tedeschi & Calhoun, 2004). Introduced by Tedeschi and Calhoun (1996) the concept of posttraumatic growth refers to five domains, in which a person may surpass the former self in the aftermath of trauma: Appreciation of life (changed sense of priorities), closer relationships (sense of connectedness), personal strengths (enhanced coping and resilience), new perspectives (increase of inspiration and goal-setting) and spirituality (greater interest in religion, philosophy and existential matters). There are first indications that PTG is associated with positive mental health outcomes and therefore of worth to be supported. Middleton (2016) expects high well-being resp. flourishing (see Keyes, 2002) and posttraumatic growth to be closely related due to major theoretical overlaps. Indeed, research detected that PTG buffers the negative effect of posttraumatic stress symptoms (PTSS) on psychological distress and well-being (Bluvstein et al., 2013). Yu et al. (2014) also found PTG to be associated with more positive emotions, enhanced emotion regulation and increased self-efficacy in cancer patients. Moreover, PTG appears to contribute to higher life satisfaction (Triplett et al., 2012), increased health-related life quality (Liu et al., 2020; Sim et al., 2015) and less depressive symptoms (Helgeson et al., 2006). Whereas the concept of PTG appears fairly concise and consistent across research literature, the picture is less clear regarding the concept of meaning in life.

Meaning in Life

Despite its long-lasting history, there is no consensus about the definition of the meaning in life construct. The amount, diversity and quality of instruments to measure MIL resemble the scope of conceptualizations and underline the need for further research on this construct (Brandstätter et al., 2012). The term goes back to the Austrian psychologist Viktor Frankl (1985) and his personal experiences as concentration camp prisoner during Holocaust. He describes meaning to be a specific, sense-making aspect of each individual's life built upon personal values and present even in times of severest suffering. Based on this conceptualization, several definitions have been introduced alternately determining MIL as a unidimensional or multidimensional construct. Modern research aims to break down the past variety of definitions and tends to define MIL as a three-dimensional construct (George & Park, 2016; Heintzelmann & King, 2014; Martela & Steger, 2016). According to these theoretical considerations MIL comprises (a) a sense of the world, one's life and own experiences (coherence/comprehension), (b) a sense of a desired future and goal-direction (purpose) as well as (c) a sense of existential value and self-worthiness (significance/mattering). MIL consists of the cognitive dimension of coherence resp. comprehension to neutrally describe and understand the own autobiography in the context of world history. The other two dimensions evaluate one's own self-worth, actions and achievements in relation to societal norms and values: Purpose arises through viable prospects and builds the motivational component of meaning. Significance or mattering is created with regard to present life aspects of personal importance and forms the affective dimension of meaning.

Apart from construct dimensionality, there has been some discussion in research literature about the relation between meaning and purpose in life: Whereas some authors like Frankl use meaning and purpose interchangeably, others claim that meaning and purpose refer to dis-

tinct constructs (George & Park, 2013): While the narrower term purpose refers to a source of motivation and goal-directed behavior, meaning is the extent to which an individual comprehends and finds value in the own life story. In 2009, Morgan and Farsides found quantitive evidence for a multidimensional conceptualization with purpose being one component of meaning. Based on these findings, George and Park (2013) conducted further research revealing that both constructs correlate with each other, but relate to completely different predictors and outcome variables. Inter alia no correlation between purpose in life (PIL) and PTG, but a positive association between MIL and PTG was found. In line with these findings, current literature determines purpose as one out of the three components of meaning stated above (George & Park, 2016; Martela & Steger, 2016).

In a review by Brandstätter et al. (2012) it appears that the three dimensions of MIL are only partially addressed in corresponding instruments, which vary extremely with regard to the construct facets they focus on and try to assess. The study also points to presence of meaning (PM) and search for meaning (SM) being two frequently measured aspects of meaning. They both derive from and build the two subscales of the Meaning in Life Questionnaire by Steger et al. that was introduced in 2006 and is widely used since then. While presence of meaning can be defined as the current extent of an individual's perceived meaning in life, search for meaning refers to the degree an individual is willing to seek meaning in life henceforth. The latter aspect is the source of an ongoing debate in research literature: Whereas Frankl (1985) and Maddi (1970) regard search for meaning as a natural and motivational factor of everybody's life and an indicator of mental health, Baumeister (1991) and Klinger (1998) see search for meaning as a result of unfulfilled needs and a risk factor for psychological dysfunction. In a recent meta-analysis of 147 studies (Li et al., 2020), PM was moderately and SM weakly associated with subjective well-being. Moreover, Lin et al. (2020) found

search for meaning to be associated with more life satisfaction. In contrast, earlier studies by Steger, Kashdan et al. (2008) found that search for meaning is related to rumination and lower psychological wellbeing in terms of environmental mastery, relatedness and self-acceptance. In addition, Schulenberg, Strack et al. (2011) detected a stronger urge to search for meaning accompanied by more psychological distress. These inconsistent findings regarding mental health outcomes suggest that there might also be differences between PM and SM with respect to posttraumatic growth.

The Relation and Relevance of Meaning in Life and Posttraumatic Growth

Understanding the relationship of meaning in life and posttraumatic growth appears to be worthwhile as both constructs appear to be associated with positive health outcomes. Meaning in life has been found to enhance physical health (Affleck et al., 1987; Bower et al., 1998), mental health and well-being (Park & Gutierrez, 2013). In a Meta-Analysis, Helgeson et al. (2006) detected that higher PTG scores are related to more well-being (r = 0.22; 95% CI: 0.18 to 0.25, k =17) in people affected by different kinds of traumatic experiences. Moreover, recent findings support early observations by Frankl (1985) that meaning functions as a protective and motivational factor especially in times of suffering: A random-effects meta-analysis (Fischer et al., 2020) detected a significant negative relationship with moderate effect size (r = -0.41; 95% CI: -0.47 to -0.35, k =25) between MIL and posttraumatic stress symptoms in the U.S. military personnel. The results appear to apply for the sample (N = 9,751) independent from age, sex, race and marital status. Similar outcomes appear in another random-effects meta-analysis by Winger et al. (2016) reporting a moderate negative association between MIL and psychological distress in cancer patients (r = - 0.41, 95% CI: > 0.47 to > 0.35, k = 44), again without being influenced by moderators. These findings suggest that

MIL could be an important resource with a buffering effect for negative mental health outcomes or a supportive factor for recovery after being confronted with a traumatic life event.

More remarkably, meaning in life even appears to contribute to the process of coping and growth resulting from the struggle with traumatic life challenges (Calhoun et al., 2000; Cann, Calhoun, Tedeschi & Solomon, 2010; Park, 2010; Sumalla et al., 2009). Coping with adversity comprises goal adjustment, the accomplishment of tasks and handling difficult emotions (Bohlmeijer & Hulsbergen, 2018). This process requires the modification of the former belief system and the creation of a new assumptive world, in which the traumatic experience can be sensibly integrated (Janoff-Bulmann, 1992; Joseph, 2012). This way of reflective thinking includes the understanding of what happened, finding valuable aspects in times of adversity and forming a coherent life story with the traumatic experience being a new part in it (Cann, Calhoun, Tedeschi, Solomon et al., 2010). Park (2010) reports some earlier study results, which found meaning-making coping with a traumatic event to be a determinant for PTG (e.g. Armeli et al., 2001; Frazier at al., 2004; Sears et al., 2003). Calhoun (2000) also detected a positive correlation between meaning-making and PTG and there is empirical support for a positive relationship between the presence of MIL and PTG (Cann, Calhoun, Tedeschi & Solomon, 2010).

The relationship between MIL, PTG and positive mental health is also partially supported in intervention studies. In a randomized controlled trial (RCT), Zheng et al. (2019) found MIL to mediate the positive effect of expressive writing and use of cognitive words on PTG in traumatized university students. Moreover, in a longitudinal intervention study, Hayes et al. (2005) showed that *meaning-centered interventions* (MCIs) resulted in increased meaning-making, which also lead to lower depression levels as well as higher self-esteem and PTG. While these findings nourish the idea to integrate MIL in clinical interventions promoting

PTG, the overall state-of-the-art is inconsistent with regard to other RCT studies underlining the need for further research on relevant variables and mechanisms. Kissane et al. (2019) found moderate positive effects of meaning-centered life review therapy on PTG in cancer patients. However, the intervention did only increase purpose in terms of future-oriented choices and goal-setting, but not personal meaning. In a study by van der Spek et al. (2017), meaning-centered group therapy increased personal meaning, psychological well-being and mental health in cancer survivors, but the hypothesized impact on PTG was not supported. Investigating the underlying constructs and their relationships can contribute to the clarification of these contradictory findings and to the creation of effective interventions.

In sum, research literature hints at a relationship between MIL and PTG and its relevance for positive health outcomes and well-being. Currently, a fair amount of articles on this subject does exist, but a systematic overview is still lacking. The present study is therefore required to lie the foundation for future research and clinical practice regarding the implementation of both concepts in the treatment after trauma exposure. The main research question (RQ) to be investigated in the present study is: What is the relation between meaning in life and posttraumatic growth? Apart from that, the following subquestions (SQ) are of interest:

(1) What are the characteristics of studies on the relationship between meaning in life and posttraumatic growth?

(2) What differences in study results can be identified with respect to trauma type?

(3) What differences in study results can be found between global meaning, presence of meaning and search for meaning measures.

Method

Literature Search

Search for relevant literature was carried out in the time period from mid-September to mid-October 2021. No restriction regarding the publication date was made. Consistent with the field of study, the main search was conducted in PsycINFO via EBSCO. To take a broader scientific view into account, the databases Scopus and Web of Sciene were used for a multi-disciplinary search. The search field comprised a) meaning in life and b) posttraumatic growth using the following search string: "meaning in life" OR “meaningful life“ OR “purposeful life“ OR "purpose in life" AND “posttraumatic growth” OR “posttraumatic growth” OR PTG OR “growth after trauma“. As indicated earlier, purpose is often used as a synonym for meaning in research literature. Thus, it is possible that an article uses the term purpose primarily, but actually investigates the construct of meaning as defined in the introduction. With the intention to not miss out on relevant literature, purpose is included in the search string just as different spellings of posttraumatic growth. Synonyms of posttraumatic growth were not included as these did not result in any useful additional findings.

Study Selection

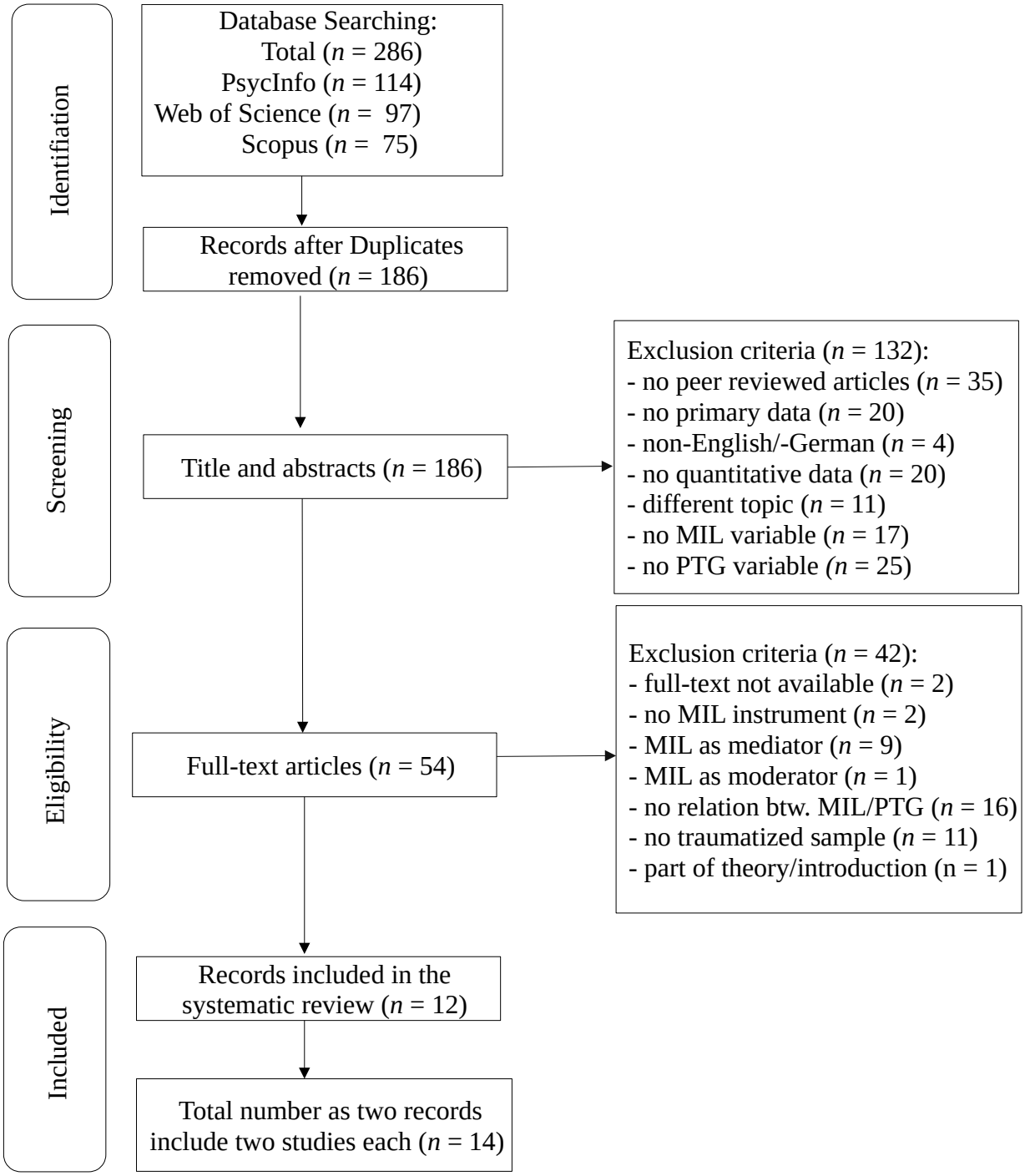
Eligible articles were gathered in two phases: Screening of (a) titles and abstracts and (b) full-texts. Peer-reviewed primary studies with quantitative data collection and written in English or German language were included. Other inclusion criteria were: participants having experienced a traumatic event as per definition (APA, 2013), relationship between MIL and PTG tested and MIL measured with a valid MIL instrument (see Brandstätter et al. 2012).

Articles were excluded, if they did not fit to the present topic or if they investigated samples with missing or questionable traumatic exposure (APA, 2013). The latter exclusion criterium was applied (a) when a study used a mixed sample also including participants who ex-

perienced a stressful life event such as a divorce or financial straints (Humby et al., 2018; Kowalska et al., 2019; Triplett et al., 2012), (b) when the authors focused on and deliberately used the terms personal growth or growth instead of PTG (Ben-Ari et al., 2012, Ben-Yaakov et al., 2021; Samios et al., 2020; Shenkman, 2016; Shenkman & Shanotkin, 2017; Taubman-Ben-Ari et al., 2008), or (c) when it was not stated whether the samples were exposed to trauma or not (Frazier et al., 2009; Vanhooren et al., 2018). Other exclusion criteria were: MIL or PTG variable not included, relationship between MIL and PTG not tested and MIL examined as a moderator or mediator variable. Furthermore, two articles were excluded, because they only used a single purpose subscale of a multidimensional instrument measuring a construct other than MIL (see Brandstätter et al., 2012). Two other articles were excluded as the full-texts could not be obtained. Lastly, one article was already part of the theoretical derivation in the introduction and was therefore excluded. The whole selection process is displayed in the *PRISMA Flow Chart* (Liberati et al., 2009) in Figure 1.

Figure 1

PRISMA Flow Chart



Note. Four phases of literature search (Liberati et al., 2009) on the relationship between meaning in life and posttraumatic growth.

The initial search in PsycINFO via EBSCO yielded 114 articles. Additional searches in Scopus (n = 75) and Web of Sciene (n = 97) led to a total amount of 286 articles. After eliminating duplicates, the aforementioned exclusion and inclusion criteria were applied to the remaining 186 records: In the first screening phase 132 records were excluded, when the literature was no peer-reviewed article, contained no primary and quantitative data, was not available in English or German language, clearly referred to a different topic and MIL or PTG as a variable was missing. In the eligibility phase, 42 articles were excluded, when the full-text was not available, no MIL instrument was used, MIL was only examined as a mediator or moderator variable, no relation between MIL and PTG was tested, an article was already part of the introduction or the sample was not exposed to a traumatic situation per definition (APA, 2013). Finally, 12 records were included in the analysis. Two of these comprised two studies each resulting in a total amount of 14 studies.

Evaluation of results

Each record was assigned to one of three target groups: Samples affected by disaster, samples affected by chronic disease and samples affected by another traumatic event. With regard to the bivariate analysis, the overall pattern as well as the measures for global meaning, presence of meaning and search for meaning were analyzed separately in each target group. In order to summarize and compare the Pearson coefficients, the raw correlations were first converted into Fisher's z-scores, which were then cumulated into weighted average values and lastly re-converted into Pearson's r. This analysis was done online via https://www.psychometrica.de/korrelation.html. In addition, the median score was generated whenever possible via https://miniwebtool.com/de/median-calculator/. Most articles conducted bivariate analysis. Some articles also reported regression analysis controlling for sociodemographics (e.g. gender, age and cultural background) and other variables (e.g. PTS, social support and severity of

life impact) expected to have an influence on PTG. The results of these regression analysis are discussed per study. Outcome measures are interpreted with regard to Ellis (2010, p.41) following Cohen (1988). For the correlation coefficients an effect is considered as small at r = .10, as medium at r = .30 and as large at r = .50. Regarding the multiple regression coefficients the benchmark for a small effect is at R^2 = .02, for a medium effect at R^2 = .13 and a large effect at R^2 = .26.

Results

This section aims to provide answers to the main research question on the relation between meaning in life and posttraumatic growth (RQ). Therefore, the findings resulting from the analysis of articles included in the literature review are presented and evaluated. The results are structured and summarized with regard to the following subquestions (SQ):

(1) What are the characteristics of the studies dealing with this topic?

(2) What differences in study results can be identified with respect to the type of trauma?

(3) What differences in study results can be found between global meaning, presence of meaning and search for meaning measures?

First, the study characteristics are reported (SQ1) followed by a presentation of study results comprising an overview of bivariate and regression measures. For comparison of different trauma types (SQ2), studies were assigned to three different groups of samples: (a) Samples affected by disaster, (b) Samples affected by chronic disease and (c) Samples affected by other types of trauma. Within these samples, global meaning, presence of meaning and search for meaning are compared (SQ3). In the end, a summary of results is given with regard to the research questions.

Study Characteristics

Twelve records investigated on the relationship between meaning in life and posttraumatic growth. The following analysis refers to a total amount of 14 studies as two articles comprised two studies each. In both cases, the same research questions were examined, but with two different samples. Table 1 provides descriptive data and lists all records organized with regard to the trauma types into three target groups: (a) Samples affected by disaster ($k = 7$), (b) samples affected by chronic disease ($k = 4$), and (c) samples affected by other traumatic events ($k = 3$). Within the groups, the articles are listed alphabetically after the name of the first author.

Table 1

Characteristics of studies included in the literature review to measure the relationship between meaning in life and posttraumatic growth

No.	Author(s)	*N*	Sample	Age: Mean (SD)/ range	Female in %	White/ Caucasian in %	MIL measure	PTG measure
Samples affected by disaster								
1	Bouillon et al. (2016)	120	Survivors of 2016 Louisiana Flooding	35–54 (*n* = 68, 56,66%)	85.80	89.20	MLQ (Steger et al. 2006) α = .91	PTGI (Tedeschi & Calhoun, 1996) α = .94
2	Cárdenas-Castro et al. (2021)	254	Survivors and family members of victims of state terrorism	60.85 (13.40) 20–98	58.20	-	MLQ-SF (Steger & Samman, 2012) α = .76	PTGI-SF (Cárdenas et al., 2015) α = .86
3	Dursun et al., (2013)	57	Victims of September 2013 Colorado floods	39.63 (5.67)	56.14	83.90	MLQ (Steger et al. 2006) α =.93–.95	PTGI (Tedeschi & Calhoun, 1996) α = .97

Table 1 continued

No.	Author(s)	*N*	Sample	Age: Mean (SD)/ range	Female in %	White/ Caucasian in %	MIL measure	PTG measure
4	Steger et al. 2008	188 (Study 1)	Students after 9/11 terrorist attack	20.80 (2.5) 14–31	62.00	84.00	LRI (Battista & Almond, 1973) α = .94	LCS (Frazier et al., 2001) α = .84 PBS (McMillen & Fischer, 1998), α = .90
		46 (Study 2)	Spanish residents after 2004 Madrid bombings	22.20 (3.6) 17–34	72.00	-	MLQ (Steger et al. 2006) α = .81–.90	LCS (Frazier et al., 2001) α = .70 PBS (McMillen & Fischer, 1998), α = .97
5	Weber at al. (2019)	412 (Study 1)	Students affected by natural hazard (tornado-region)	-	-	85.00	PIL-SF (Schulenberg et al.,2011) α = .82	PTGI-SF (Cann et al., 2010) α = .96
		225 (Study 2)	university staff affected by natural hazard (tornado-region)	-	-	87.60	MLQ-P (Steger et al, 2006) α = .81 - .93	PTGI-SF (Cann et al., 2010) α = .96

Table 1 continued

No.	Author(s)	*N*	Sample	Age: Mean (SD) / range	Female in %	White/ Caucasian in %	MIL measure	PTG measure
Samples affected by chronic disease								
6	Aflakseir et al. (2018)	196	women with breast cancer diagnosis	52.00 (12.32) 25–78	100.00	-	PMI (Reker, 1999) α = .89	PTGI (Tedeschi & Calhoun, 1996) α = .90
7	Mostarac & Brajkóvic (2021)	149	Cancer patients	49.18 2–85	70.47	-	MLQ (Steger et al. 2006) α = .77 - .88	PTGI (Tedeschi & Calhoun, 1996) α = .96
8	Wang et al. (2020)	221	COPD patients	58–72	29.40	-	C-MLQ (Lui & Gan, 2010) α = .72–.81	C-PTGI (Wang et al., 2011) α = .61–.80
9	Zeligman et al. (2018)	110	students with chronic illness	25.37 (7.96) 19–62	59.10	15.50	MLQ (Steger et al., 2006) α = .87–.92	PTGI (Tedeschi & Calhoun, 1996) α = .95

Table 1 continued

No.	Author(s)	*N*	Sample	Age: Mean (SD) / range	Female in %	White/ Caucasian in %	MIL measure	PTG measure
Samples affected by other traumatic events								
10	Linley & Joseph (2011)	83	funeral directors (daily confrontation with death)	47.79 (11.49) 24–77	22.89	99.00	MLQ (Steger et al. 2004)[1] [2] α not stated	CiOQ (Joseph et al. 1993) α not stated
11	Prieto-Ursúa & Jódar (2020)	1,091	Spanish people affected by corona virus crisis	19–59 (82,6%)	69.94	-	PIL-10 (García-Alandete et al., 2013), α = .89	CPTG (Páez et al., 2012) α = .93
12	Sawyer & Brewster (2019)	299	Bereaved adults	43.49 (12.64) 18–78	84.00	93.00	MLQ (Steger et al., 2006) α = .85–.93	PTGI (Tedeschi & Calhoun, 1996) α = .90 - .92

Note. N = sample size. MIL = Meaning in Life. PTG = Post-Traumatic Growth. P = Presence of Meaning. S = Search for Meaning. MLQ(-SF) = Meaning in Life Questionnaire(-short form). COPD = Chronic Obstructive Pulminory Disease. C-MLQ = Chinese Version of MLQ. LRI = Life Regard Index. PIL-SF = Purpose in Life-short form. PTGI(-SF) = Posttraumatic Growth Inventory(-short form). C-PTGI = Chinese Version of PTGI. PBS = Perceived Benefits Scale. LCS = Life Changes Scale. PIL-10 = Purpose in Life Test-10. CiOQ = Changes in Outlook Questionnaire. CPTG = Community Post-Traumatic Growth scale. SSL = Satisfaction and Sense of Life Scale. GPL = Goals and Purpose in Life scale.

1 Cronbach's alpha not reported
2 actually Steger et al. (2006)

In total, the studies examined 3,451 participants. Except for one study with a larger sample (N = 1,091), the majority of studies rather made use of small to medium sample sizes (M = 181.54, SD = 103.85, range = 46 – 412, k = 13). Two studies did not report any age or gender data. Three other articles did not state a mean age. Six studies did not indicate the cultural background of participants. Eleven studies did not report proportions of ethnical groups other than White/Caucasian. The following statistics do refer to the studies that include the descriptive data concerned. Participants' age ranged from 14 to 98 years. The mean age was 40.15 (SD = 14.30, k = 9). The majority of participants was female (M = 64.16%, SD = 21.06%, range = 22.89 – 100.00%, k = 12). Two articles reported a higher percentage of males than females. One study comprised a mere female sample. Furthermore, samples mainly consisted of White/Caucasian people (M = 79.65%, SD = 26.42%, range = 15.5 – 99.0%, k = 8). Three studies reported proportions of participants identifying as Black (M = 17.60%, SD = 18.69%, range = 15.2 – 39.1%), Asian (M = 7.33%, SD = 7.08%, range = 2.9 – 15.50%), multiracial (M = 3.60%, SD = 3.20%, range = 1.70 – 7.30%), Latino (M = 2.47%, SD = 3.41%, range = 0.50 – 6.40%) or other (M = 2.50%, SD = 2.60%, range = 1.00 – 5.50%). A minority of participants in these studies identified as Native American (0.50%), Alaskan Native (0.5%) and Middle Eastern (2.70%.) Only one study used a diverse, but small sample with a relatively low proportion of 15.5% White/Caucasian participants. Regarding the articles without cultural background data, conclusions can be drawn from the country, where the studies were conducted and participants recruited. The samples are expected to be predominantly Arabian (k = 1), Asian (k = 1), Latin (k = 1) and Caucasian (k = 3).

All studies were cross-sectionals using convenience sampling and self-report questionnaires for assessing the variables of interest. The majority of studies used the original or versions of the Meaning in Life Questionnaire (MLQ, Steger et al., 2006) and the original or ver-

sions of the Posttraumatic Growth Questionnaire (PTGI, Tedeschi & Calhoun, 1996). MIL was once assessed with the Personal Meaning Index (Reker, 1999). Another study made use of the Life Regards Index (LRI; Battista & Almond, 1973) and another study utilized the Purpose in Life-Test-10 (PIL-10; García-Alandete et al., 2013). PTG was measured once with the Changes in Outlook Questionnaire (Joseph et al., 1993). Another study used a combination of the Life Change Scale (LCS; Frazier et al., 2001) and the Perceived Benefits Scale (PBS; McMillen & Fischer, 1998). Cronbach's alpha ranged from .72 to .95 for the questionnaires assessing MIL and from .61 to .97 for the questionnaires measuring PTG. According to Blanz (2015), internal consistency was good to excellent for the measurement of both MIL (*Mdn* = .88) and PTG (*Mdn* = .93).

All except one article reported bivariate correlations for the relationship between MIL and PTG. Ten studies conducted regression analysis to investigate associations of MIL and PTG. In the following, the study outcomes are presented per target groups. An overview of the bivariate and regression analysis outcomes is shown in Table 2. Average correlation coefficients by target groups and meaning in life measures (global meaning vs. presence of meaning vs. search for meaning) can be found in Table 3.

Table 2

Results of studies included in the literature review to measure the relationship between meaning in life and posttraumatic growth

No.	Author(s)	*N*	Sample	Bivariate measures	Regression measures	Control variables
Samples affected by disaster						
1	Bouillon et al. (2016)	120	Survivors of 2016 Louisiana Flooding	P: $r = .19$, $p \leq .05$ S: $r = .21$, $p \leq .05$	β = .32, $p < .01$ $r^2 = .09$ β = .30, $p < .001$ $r^2 = .10$ $R^2 = .45$	Posttraumatic stress Gender Damage impact Income Religion Ethnicity
2	Cárdenas-Castro et al. (2021)	254	Survivors and family members of victims of state terrorism	$r = .51$, $p < .01$	$\beta = .23$, $p < .001$ $\Delta R^2 = .11$ $R^2 = .53$, $p < .001$	Life impact Social sharing of emotions Deliberate rumination Positive reappraisal Spiritual practices
3	Dursun et al., (2013)	57	Victims of September 2013 Colorado floods	P: $r = .26$, $p = .063$ S: $r = .31$, $p < 0.5$	β = .22, $p = .22$ β = .31, $p = .017$ $\Delta R^2 = .23$ $R^2 = .56$	Gender Religious status Posttraumatic stress Age Vitality

Table 2 continued

No.	Author(s)	*N*	Sample	Bivariate measures	Regression measures	Control variables
4	Steger et al. 2008	188 (Study 1)	Students after 9/11 terrorist attack	LCS: *r = .26, p < .05* PBS: *r* = .10, *n.s.*	β = .26, *p* < .001 ΔR^2 = .07 Adj. R^2 = .07, *p* < .001	Age Gender Type of exposure Terrorism-related worries
		46 (Study 2)	Spanish residents after 2004 Madrid bombings	LCS: P: *r* = .37, *p* < .05 S: *r* = - .19, n.s. PBS: P: *r* = - .16, n.s. S: *r* = .19, n.s.	β = .43, *p* < .001 ΔR^2 = .18 Adj. R^2 = .36, *p* < .001	Age Gender Type of exposure Terrorism-related worries
5	Weber at al. (2019)	412 (Study 1)	Students affected by natural hazard (tornado-region)	*r* = .18, *p* = .001	*b* = 0.14, SE = 0.03, *p* < .001 CFI = .947, SRMR = .050 RMSEA = .070, 90% CI [.053, .088]	Psychological resilience Disaster preparedness Previous tornado impact
		225 (Study 2)	university staff affected by natural hazard (tornado-region)	*r* = .14; *p* = .047	*b* = 0.07, SE = 0.03, *p* =.022 CFI = .947, SRMR = .045 RMSEA = .074, 90% CI [.047, .103]	Psychological resilience Disaster preparedness Previous tornado impact

Table 2 continued

No.	Author(s)	*N*	Sample	Bivariate measures	Regression measures	Control variables
Samples affected by chronic disease						
6	Aflakseir et al. (2018)	196	women with breast cancer diagnosis	$r = .33$, $p < 0.001$	$\beta = .26$, $p < 0.05$ $R^2 = .34$	-
7	Mostarac & Brajkóvic (2021)	149	Cancer patients	P: $r = .44$, $p < .01$ S: $r = .46$, $p < .01$	-	-
8	Wang et al. (2020)	221	COPD patients	*Spearman's* $r = .50$ P: $r = 0.47$ S: $r = 0.47$	$\beta = .17$, $p = .001$ Total $R^2 = .49$ Adj. $R^2 = .47$	-
9	Zeligman et al. (2018)	110	students with chronic illness	P: $r = .40$, $p < .01$ S: $r = .07$, n.s.	$sr^2 = .13$, $p < .001$ $R^2 = .22$	-

Table 2 continued

No.	Author(s)	*N*	Sample	Bivariate measures	Regression measures	Control variables
Samples affected by other traumatic events						
10	Linley & Joseph (2011)	83	funeral directors (daily confrontation with death)	P: $r = .40$, $p < .001$ S: $r = -.01$, n.s.	-	-
11	Prieto-Ursúa & Jódar (2020)	1,091	Spanish people affected by corona virus crisis	-	SSL: β = - .14, n.s. GPL: β = 4.61, p < .001 $\Delta R^2 = .08$ $R^2 = .15$	Age Gender Type of confrontation with negative corona outcomes
12	Sawyer & Brewster (2019)	299	Bereaved adults	P: $r = .18$, $p < 0.01$ S: $r = .31$, $p < 0.001$	β = .19 β = .18 $\Delta R^2 = .07$, $p < .001$ $R^2 = .23$	Age Gender Education Relationship to the dead person Nature of death Belief in god

Note. N = sample size. MIL = Meaning in Life. PTG = Post-Traumatic Growth. P = Presence of Meaning. S = Search for Meaning. PBS = Perceived Benefits Scale. LCS = Life Changes Scale. SSL = Satisfaction and Sense of Life Scale. GPL = Goals and Purpose in Life scale.

Table 3

Average correlation coefficients by samples and meaning in life measures

	Samples affected by disaster			Samples affected by chronic disease			Samples affected by other traumatic events		
	$\bar{r}$	*Mdn*	*k*	$\bar{r}$	*Mdn*	*k*	$\bar{r}$	*Mdn*	*k*
Total measures	.25	.21	7	.36	.42	4	.26	.32	2
Global meaning measures	.28	.22	3	-	-	1	-	-	-
Presence of meaning	.18	.20	4	.42	.45	2	.23	.30	2
Search for meaning	.23	.21	4	.32	.28	2	-	-	2

Note. $\bar{r}$ = weighted average mean scores of Fisher z-transformed Pearson correlations. *Mdn* = Median, *k* = number of articles. No scores reported when only one or none article states Pearson's correlation coefficient or when two articles state a positive and a negative correlation.

Samples affected by disaster

Most studies on disaster investigated samples affected by a natural catastrophe, a single terrorist attack or ongoing state terrorism. All studies assessed Pearson correlations between MIL and PTG (see Table 2). The majority of studies found a positive relationship of both constructs with a small to moderate average effect size ($\bar{r}$ = .25, *Mdn* = .21, *k* = 7). Noticeably, the results for all three meaning measures did not yield significance when PTG was assessed with the PBS (McMillen & Fisher, 1998) in both study samples by Steger, Frazier et al. (2008). Apart from that, global meaning scores were positively correlated with PTG to an almost moderate degree (see Table 3). For presence of meaning resulted a consistent positive correlation with small effect size, which was not significant in the study by Dursun et al. (2016). Search for meaning was also positively and weakly correlated with PTG. In the second study by Steger, Frazier et al. (2008), measuring PTG with the LCS (Frazier et al., 2001) even lead to a negative non-significant correlation.

Almost all studies conducted regression analysis (see Table 2). Except for Weber et al. (2020), the authors reported standardized regression coefficients showing an average moderate association between MIL and PTG (*Mdn* = .30) beyond control variables. The explained variance of MIL for PTG ranged with 7% to 23% from a small to moderate extent.

In a sample of Louisiana Flooding survivors Boullion et al. (2020) found presence of meaning and search for meaning to be significantly related to PTG with moderate effect. Presence of meaning (9%) and search for meaning (10%) both explained a small percentage of variance in PTG.

In the study by Cárdenas-Castro et al. (2021) the relationship between MIL and PTG remained significant, but lower than in the bivariate analysis. Global MIL and spiritual practices together resulted in a small explained variance of 11% for PTG.

In the study by Dursun et al. (2016), search for meaning was moderately associated with PTG. Together with perceived social support a moderate explained variance of 23% was found. In accordance with previous bivariate analysis, presence of meaning was no significant predictor variable in the regression model.

Steger, Frazier et al. (2008) detected a robust moderate relationship of global MIL and presence of meaning with PTG when measured with the LCS (Frazier et al., 2001). In the first study, the explained variance of global meaning was small (7%), whereas in the second study, presence of meaning explained 18% of variance in PTG.

Weber et al. (2020) conducted an exploratory path analysis to investigate the relation between global MIL, resilience, disaster preparedness, tornado impact as factor variables and PTG as latent variable. In both studies the model fit was good to excellent. The authors exclusively stated the unstandardized regression coefficient in both samples living in the same tornado-region. The authors found a significant and positive relationship between MIL and PTG in students. In the sample of university staff, MIL and PTG were still related, but not as strong as in the bivariate analysis.

Samples affected by chronic disease

The second target group comprises samples suffering from cancer, chronic obstructive pulmonary disease (COPD) or other chronic and life-threatening diseases. The article by Mostarac and Brajkóvic (2021) was the only one that missed out on regression analysis. As shown in Table 2, all articles conducted bivariate analysis and mainly reported Pearson's correlation coefficients with the exception of Wang et al. (2020). The latter study stated a Spearman's rho for both presence of meaning and search for meaning hinting at a positive medium relationship with PTG in a sample of COPD patients. The other studies in this target group consistently found a positive correlation between MIL and PTG with moderate effect

size ($\bar{r}$ = .36, *Mdn* = .42, *k* = 4).

One study (Aflakseir, 2018) assessed global MIL, which was moderately correlated with PTG (β = .33) in a sample of women with breast cancer diagnosis. The strongest correlations with PTG were found for presence of meaning, while the outcomes regarding the relationship between search for meaning and PTG remained inconsistent: Whereas Mostarac & Bajkóvic (2021) found a moderate significant correlation in a sample with cancer patients, Zeligman et al. (2018) reported a rather weak relationship that did not yield significance in students with chronic illness.

Regression analysis revealed positive weak to moderate associations between MIL and PTG with somewhat smaller scores compared to the correlation coefficients. In the study by Alafkseir (2018), global MIL was weakly related to PTG and together with social support resulted a strong total explained variance of 34%. However, the exact proportions of variance remain unclear and no control variables are reported. Wang et al. (2020) also found a weak association between global meaning and PTG. The explained variance of the total regression model was high with 47%. Zeligman et al. (2018) detected a positive squared semi-partial correlation between presence of meaning and PTG with moderate effect size (see Ellis, 2010).

Samples affected by other traumatic events

A few studies investigated participants that were confronted with death away from disasters or chronic diseases. Linley and Joseph (2011) did not conduct regression analysis. Prieto-Ursúa and Jódar (2020) did not report any bivariate correlations. The other studies mostly found significant positive relationships between MIL and PTG with small to moderate effect size ($\bar{r}$ = .26, *Mdn* = .32, *k* = 2). Linley and Joseph (2011) examined a sample of funeral directors that were expected to necessarily be exposed to death on a daily basis within the scope of their work. Whereas the authors found presence of meaning to be positively correlated with

PTG to a moderate extent, search for meaning was negatively and not significantly related to PTG. In contrast, Sawyer and Brewster (2019) found an even stronger positive relationship between search for meaning and PTG ($r = .31$, $p < .001$) compared to presence of meaning and PTG ($r = .18$, $p < .01$) in a sample of bereaved adults.

Prieto-Ursúa and Jódar (2020) investigated a bigger sample ($N = 1{,}091$) of Spanish people affected by the corona virus crisis. In their regression analysis, global MIL was negatively related to PTG, when the latter was measured with the Satisfaction and Sense of Life Scale (SSL) of the Purpose in Life Test-10 (PIL-10; García-Alandete et al., 2013). The association was not significant. When PTG was assessed with the Goals and Purpose Life Scale of the PIL-10 (García-Alandete et al., 2013), the relationship was remarkably strong ($\beta = 4.61$, $p < .001$). The standardized beta is reported to be above one, which is usually not correct. The most likely explanation with regard to the whole result section is that the authors mixed up the unstandardized *B* and the standardized β. Another reason might be an existing multicollinearity between the independent variables (Jöreskog, 1999). Although the beta coefficient cannot be included in the evaluation of the review results, it appears conclusive that MIL explained a small significant change of 8% in PTG variance beyond control variables.

In the study by Sawyer and Brewster (2019), presence of meaning and search for meaning were equally related to PTG beyond control variables. Both MIL subscales together explained a small significant change in variance of 7%.

Summary of results

This section summarizes the results considering the relation between meaning life and posttraumatic growth (RQ), the study characteristics (SQ1) as well as the differences between trauma types resp. target groups (SQ2) and meaning in life measures (SQ3).

The cross-sectional studies included in the analysis consistently investigate convenience samples of small to medium size with mostly female, middle-aged and white/caucasian participants. Both MIL and PTG are measured with self-report questionnaires across all studies. Putting the results together, meaning in life appears to be positively related with posttraumatic growth ranging from a small to moderate effect size independent of trauma types, MIL assessment instruments and time since traumatic exposure. Across all meaning in life measures, the strongest associations can be found in the chronic disease sample, whereas the disaster samples report the weakest associations. Samples affected by other traumatic events report relationships that are slightly stronger than in the disaster samples, but lower than in the chronic disease samples. Overall, the relationship between MIL and PTG remains robust, when controlling for demographics and other variables expected to be associated with PTG. The explained variance of MIL for PTG ranges from a small to large degree with 7% to 34%. Again the effect sizes are strongest in the chronic disease followed by the disaster samples.

Study outcomes appear to be somewhat out of line regarding the meaning in life measures: While global MIL scores and presence of meaning rather consistently show significant positive associations, contradictory results appear with respect to search for meaning in each target group. Whereas some studies show moderate associations between search for meaning and PTG, others report non-significant or even negative associations. The greatest consistency can again be found in the chronic disease sample. Here, search for meaning is positively associated with PTG and, with one exception, the correlations yield significance to a moderate degree.

Discussion

Research on the relationship between meaning in life and posttraumatic growth is still in its infancy and to current knowledge, the present study is the first one systematically summa-

rizing quantitative evidence on this subject. In the following, the main results of this literature review are critically discussed with regard to previous theoretical suggestions and quantitative findings. Finally, the current state of the art and deriving implications for further research and practical implementation are presented.

Main findings

The main research question was on the relationship between meaning in life and posttraumatic growth. The present review primarily found small to moderate positive associations between MIL and PTG, which remained significant across trauma types, MIL assessment instruments and time since traumatic exposure. (Aflakseir et al., 2016; Bouillon et al., 2016; Cárdenas-Castro et al., 2021; Dursun et al., 2013; Linley & Joseph, 2011; Mostarac & Brajkóvic; Prieto-Urúa & Jódar, 2020; Sawyer & Brewster, 2019; Steger et al., 2008; Wang et al., 2020; Weber et al., 2019; Zeligman et al., 2018). These findings are in line with previous theoretical considerations and first quantitative results suggesting both constructs to be related to each other (Park, 2010; Weathers et al., 2016). Moreover, meaning in life was found to explain small to large proportions of variance in PTG and the relation between MIL and PTG remained significant even when controlling for other factors expected to be associated with PTG. The majority of studies investigates participants affected by disasters followed by samples suffering from chronic disease. The latter target group shows the strongest average correlations between meaning in life and posttraumatic growth. Moreover, the review outcomes are rather consistent considering global meaning and presence of meaning measures, which is again supported in research literature (Cann, Calhoun, Tedeschi and Solomon, 2010; George and Park, 2013; Park et al., 2012).

Contradictory findings are present with regard to search for meaning: Whereas some articles report positive moderate relationships with PTG (Dursun et al., 2013; Mostarac & Bra-

jkóvic, 2021; Sawyer & Brewster, 2019; Wang et al., 2020), others state non-significant (Steger et al, 2008; Zeligman, 2018) or negative associations (Linley & Joseph, 2011; Steger, Frazier et al, 2008). This inconsistent pattern corresponds to opposing theoretical viewpoints (Steger, Kashdan et al., 2008) and former research findings (e.g. Li et al., 2020; Lin et al., 2020). One reason could be an interaction effect between presence of meaning and search for meaning that is not considered in the review studies. In 2010, Park et al. found search for meaning to be negatively related to life satisfaction, happiness and positive affect and positively related to depression and negative affect. In 2017, Yek et al. found higher SM levels being related to higher health anxiety. In both studies, however, these negative associations were weaker or even became positive, when participants searched for meaning while already experiencing some sense of meaning in life. Another explanation and resolution approach can be found with respect to Newman et al. (2018). The authors claim that meaning has been solely treated as a trait variable thus far, although theory clearly points to the existence of a state component of meaning. Their study results indeed show positive relationships of search for meaning with presence of meaning and well-being when using within-person designs. In comparison, the same associations were all negative between participants. These outcomes hint at search for meaning being a fluid component constantly varying over time that should be measured differently than presence of meaning and rather as a state variable contemplated in within-person-designs. These suggestions might also be transferable to the concept of PTG, which Tedeschi and Calhoun (1996) introduced as a developmental process underlying continuous changes. To current knowledge, PTG has not been further examined as a state variable in within-person-designs.

Strength and limitations

The present literature review is the first one to summarize findings on the relationship between MIL and PTG. The results are mainly in line with previous research and draw a rather clear picture in the direction of both constructs to be associated with each other. Although strengths prevail and the overall outcomes are convincing, some limitations have to be mentioned with regard to the quality criteria, selection process and review conduction.

As it is the case with all reviews, publication bias diminishes the validity of findings as studies are usually published when results yield significance (Lipsey et al., 2003). In consequence, the association between MIL and PTG might be overestimated and should be treated with caution. Generalizability of the review findings is restricted due to the fact that a rather small amount of studies with small to medium samples sizes is included in the final analysis. At the same time it is remarkable that the results persist across a broad range of traumatic events experienced by the participants and, with few exceptions, also despite of heterogeneous use of assessment questionnaires.

Considering the trauma types in this literature review it can be questioned if all participants included in the study samples experienced a traumatic event per definition (APA, 2013) meaning that the participants themselves or close persons were confronted with (threatened) death, severe injury or sexual assault. Compared to studies excluded from the literature review, which refer to (personal) growth (e.g. Samios et al., 2020; Shenkman, 2016), the articles included consistently make use of the term posttraumatic growth. This terminology already suggests that the authors themselves expect their samples to be traumatically exposed. Their assumption is supported by descriptions on the severity of the event, its societal or individual impact and reasons for speaking of a traumatic event. Taking a closer look, some samples include participants who by all means experienced a traumatic situation, e.g. by recent

bereavement of a beloved person (Sawyer & Brewster, 2019). Studies with more mixed samples aim to ensure traumatic exposure by assessing the type of situational effect, e.g. being affected by the corona crisis in terms of receiving corona treatment in an intentional care unit (Pietro-Ursúa & Jódar, 2020). However, in a few studies (Linley & Joseph, 2011; Wang et al, 2020; Weber et al., Zeligman et al., 2008) it remains questionable if the whole sample was exposed to trauma.

Another limiting aspect of the present study is the search strategy. The review was conducted by only one person and snowball search was omitted as this would have lead beyond the review scope. The author aimed to minimize the risk of mistakes and missing out on relevant literature by repeatedly and conscientiously executing the literature search. This procedure included strictly following scientific standards (Liberati et al., 2009) and using a combination of subject-specific and interdisciplinary databases.

Lastly, the selection process stated in the method section results in a restricted explanatory power. A noticeable amount of studies (n = 11) had to be excluded from the final review due to the fact that parts of the samples were affected by adversity (e.g. in form of a life crisis like divorce), but were not exposed to trauma per definition (APA, 2013). Thus, there is a fair amount of participants having experienced a traumatic event, whose results are not included in the literature review. Apart from that, another ten studies were excluded from the final analysis as they exclusively measured MIL as a mediator or moderator variable. This decision was made, because the main interest of the literature review is on the direct relationship between MIL and PTG. Strictly speaking, however, both moderator and mediator analysis have a direct path to PTG as the dependent variable. These associations are missing in the present analysis. On the other hand, it is questionable if the inclusion of the aforementioned studies

really would make a difference for the consistency of the review findings, or if they would rather confirm the main outcomes and therefore be dispensable.

State of the art and implications

To date the relationship between MIL and PTG is exclusively investigated in cross-sectional studies using convenience sampling, self-report questionnaires and small to medium sample sizes with mostly female, middle-aged and White/Caucasian participants. Thus, research requires longitudinal studies with more heterogenous samples to test the causal direction of MIL and PTG and to enhance the generalizability of results. Considering the findings by Newman et al. (2018), the use of within-group-designs are especially recommended to examine search for meaning as a state component of MIL. The same should be evaluated for PTG being an individual process expected to change over time (Tedeschi & Calhoun, 1996). Moreover, a revision of this review is suggested for an inclusion of the missing studies examining meaning in life as a moderator or mediator variable.

The use of self-report instruments for the assessment of both constructs allows a high comparability of results. Moreover, internal consistency of all questionnaires can be assumed, because Cronbach's alpha mainly was good to excellent across all instruments (Blanz, 2015; Cortina, 1993). On the other hand, the stringent use of self-report questionnaires entails the risk of desirability and response bias meaning a tendency to answer in a socially accepted way or without reflecting on the question (Demetriou et al., 2015). In addition, the structured answer format may force participants into categories that do not fit to their natural response. Park (2010) gives some suggestions on multiple assessment techniques to overcome the limitations of self-report instruments, e.g. by language or facial expression analysis.

Research literature still refers to various meaning definitions and instruments are therefore build upon different theoretical foundations (Brandstätter et al., 2012) resulting in inconsis-

tent operationalizations of the MIL variable. In consequence, it can not be ensured that the study instruments really measure the same concept of MIL (Cronbach & Meehl, 1955) and even with this presumed, there is no consensus about the underlying construct dimensions. Thus, there is a need for agreement regarding the meaning in life definition to function as a theoretical foundation for the development of assessment instruments and interventions targeting all relevant dimensions of meaning. The modern three-dimensional concepts of meaning have major overlaps and appear to profoundly unite the former variety of definitions (George & Park, 2016; Martela & Steger, 2016). However, the dimensions of coherence/comprehension, purpose and significance/mattering still have to be verified in quantitative research. Results deriving from such analysis could be of use for an adaptation or expansion of the MLQ by Steger et al. (2006) being a widely used high quality instrument (Brandstätter, 2012) that partially addresses the facets of meaning. Alike other instruments, however, the questionnaire does not measure all three dimensions separately yet (Martela & Steger, 2016).

In the current study, meaning and growth were found to be present and relate to each other regardless of the type of trauma a person experiences. Becoming aware of and spending time with meaningful aspects that are already present in life appear to be of value for positive changes after traumatic exposure independent of the event itself. Therefore, psychological emergency and health care professionals should be educated on the importance of these concepts to promote mental health after traumatic exposure. Moreover, this knowledge can serve as starting points for trauma intervention approaches with a focus on the enhancement of well-being.

The present literature review is the first one to summarize and confirm previous theoretical suggestions and research findings on the relevance of meaning in life for the process of post-traumatic growth. Next to indispensable suffering and existential struggling, traumatic expo-

sure appears to be a source of meaning and a chance for psychological growth in terms of increasing inspiration and self-consciousness as well as of deeper relationships, life appreciation and spirituality. Independent from the type of trauma, it appears worthwhile to integrate a traumatic event as part of life history, to find significant aspects in the present life situation and to create a purposeful future outlook. Interventions that stimulate coherence, significance and purpose in life are expected to be of substantial value for coping and flourishing in the face of trauma and should be the focus of future research and clinical practice in order to promote posttraumatic growth.

References

Affleck, G., Tennen, H., Croog, S., & Levine, S. (1987). Causal attribution, perceived benefits, and morbidity after a heart attack: an 8-year study. *Journal of Consulting and Clinical Psychology*, *55*(1), 29–35.

(*) Aflakseir, A., Soltani, S., & Mollazadeh, J. (2018). Posttraumatic growth, meaningfulness and social support in women with breast cancer. *International Journal of Cancer Management, 11*(10), e11469. https://doi.org/10.5812/ijcm.11469

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders: dsm-5* (5th ed.). American Psychiatric Association.

Armeli, S., Gunthert, K. C., & Cohen, L. H. (2001). The dimensionality and antecedents of stress-related growth. Stressor appraisals, coping, and post-event outcomes: *Journal of Social and Clinical Psychology*, *20*(3), 366–395. https://doi.org/10.1521jscp.20.3.366.22304

Battista, J., & Almond, R. (1973). The development of meaning in life. *Psychiatry: Journal for the Study of Interpersonal Processes, 36*(4), 409–427.

Baumeister, R. F. (1991). *Meanings of life.* New York: Guilford.

Ben-Yaakov, O., & Taubman-Ben-Ari, O. (2021). Personal growth in the transition to parenthood following recent parental loss. *Psychological Trauma : Theory, Research, Practice and Policy*, *13*(4), 496–504. https://doi.org/10.1037/tra0001005

Blanz, M. (2015). Forschungsmethoden und Statistik für die Soziale Arbeit: Grundlagen und Anwendungen. Stuttgart: Kohlhammer.

Bluvstein, I., Moravchick, L., Sheps, D., Schreiber, S., & Bloch, M. (2013). Posttraumatic growth, posttraumatic stress symptoms and mental health among coronary heart disease survivors. *Journal of Clinical Psychology in Medical Settings*, *20*(2), 164–72.

https://doi.org/10.1007/s10880-012-9318-z

Bohlmeijer, E., & Hulsbergen, M. (2018). *Using positive psychology every day: Learn how to flourish.* Routledge.

(*) Boullion, G. Q., Pavlacic, J. M., Schulenberg, S. E., Buchanan, E. M., & Steger, M. F. (2020). Meaning, social support, and resilience as predictors of posttraumatic growth: a study of the louisiana flooding of august 2016. *The American Journal of Orthopsychiatry*, *90*(5), 578–585. https://doi.org/10.1037/ort0000464

Bower, J. E., Kemeny, M. E., Taylor, S. E., & Fahey, J. L. (1998). Cognitive processing, discovery of meaning, CD4 decline, and AIDS-related mortality among bereaved HIV-seropositive men. *Journal of Consulting and Clinical Psychology*, *66*(6), 979–986. https://doi.org/10.1037/0022-006X.66.6.979

Brandstätter, M., Baumann, U., Borasio, G. D., & Fegg, M. J. (2012). Systematic review of meaning in life assessment instruments. *Psycho-Oncology*, *21*(10), 1034–1052. https://doi.org/10.1002/pon.2113

Calhoun, L. G., & Tedeschi, R. G. (2004). The foundations of posttraumatic growth: new considerations. *Psychological Inquiry, 15*(1), 93–102.

Calhoun, L. G., Tedeschi, R. G., Cann, A., & McMillan, J. (2000). A correlational test of the relationship between posttraumatic growth, religion, and cognitive processing. *Journal of Traumatic Stress, 13*(3), 3521-527. https://doi.org/10.1023/A:1007745627077

Cann, A., Calhoun, L. G., Tedeschi, R. G., & Solomon, D. T. (2010). Posttraumatic growth and depreciation as independent experiences and predictors of well-being. *Journal of Loss and Trauma, 15*(3), 151–166. https://doi.org/10.1080/15325020903375826

Cann, A., Calhoun, L. G., Tedeschi, R. G., Taku, K., Vishnevsky, T., Triplett, K. N., & Dan hauer, S. C. (2010). A short form of the posttraumatic growth inventory. *Anxiety, Stress, and Coping*, *23*(2), 127–37. https://doi.org/10.1080/10615800903094273

Cárdenas-Castro, M., Barrientos-Delgado, J., Ricci Alvarado, E., & Páez-Rovira, D. (2015). Spanish adaptation and validation of the posttraumatic growth inventory-short form (PTGI-SF). *Violence and Victims,* 30, 756-769. https://doi.org/10.1891/0886-6708.VV-D-13-00165

(*) Cárdenas-Castro, M., Faúndez-Abarca, X., Arancibia-Martini, H., & Ceruti-Mahn, C. (2021). The relationship between posttraumatic growth and psychosocial variables in survivors of state terrorism and their relatives. *Journal of Interpersonal Violence*, *36*(1-2), 428–447. https://doi.org/10.1177/0886260517727494

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.

Cortina, J. M. (1993). What is coefficient alpha? an examination of theory and applications. *Journal of Applied Psychology*, *78*(1), 98–104. https://doi.org/10.1037//0021-9010.78.1.98

Cronbach, L. J., & Meehl, P. E. (1955). Construct validity in psychological tests. *Psychological Bulletin*, *52*(4), 281–302.

Demetriou, C., Ozer, B.U., & Essau, C.A. (2015). Self‐report questionnaires. In R. L. Cautin, & S.O. Lilienfeld (Eds.). The Encyclopedia of Clinical Psychology (First Edition, pp.1-6). John Wiley & Sons, Inc. https://doi.org/10.1002/9781118625392.wbecp507

(*) Dursun, P., Steger, M. F., Bentele, C., & Schulenberg, S. E. (2016). Meaning and posttraumatic growth among survivors of the september 2013 Colorado floods. *Journal of Clinical Psychology*, *72*(12). https://doi.org/10.1002/jclp.22344

Ellis, P. (2010). *The Essential Guide to Effect Sizes: Statistical Power, Meta-Analysis, and the Interpretation of Research Results*. Cambridge: Cambridge University Press. https://doi.org/10.1017/CBO9780511761676

Fischer, C., Shanahan, M. L., Hirsh, A. T., Hirsh, Stewart, J. C., & Rand, K. L. (2020). The relationship between meaning in life and posttraumatic stress symptoms in US military personnel: A meta-analysis, *Journal of Affective Disorders,* 277, 658-670. https://doi.org/10.1016/j.jad.2020.08.063

Frankl, V. E. (1985). *Man's search for meaning*. New York, NY: Simon and Schuster.

Frazier, P., Conlon, A., & Glaser, T. (2001). Positive and negative life changes following sex ual assault. *Journal of Consulting and Clinical Psychology,* 69, 1048–1055.

Frazier, P., Tashiro, T., Berman, M., Steger, M., & Long, J. (2004). Correlates of levels and patterns of positive life changes following sexual assault. *Journal of Consulting and Clinical Psychology*, *72*(1), 19–30.

Frazier, P., Tennen, H., Gavian, M., Park, C., Tomich, P., & Tashiro, T. (2009). Does self-re ported posttraumatic growth reflect genuine positive change? *Psychological Sci ence*, *20*(7), 912–919.

García-Alandete, J., Martínez, E. R., and Sellés Nohales, P. (2013). Factorial structure and internal consistency of a Spanish version of the Purpose-In-Life Test (JCR). *Universitas Psychologica, 12*(2), 517–530.

George, L. S., & Park, C. L. (2013). Are meaning and purpose distinct? An examination of correlates and predictors. *The Journal of Positive Psychology*, *8*(5), 365–375. https://doi.org/10.1080/17439760.2013.805801

George, L. S., & Park, C. L. (2016). Meaning in life as comprehension, purpose, and mattering: toward integration and new research questions. *Review of General Psychology*, *20*(3), 205–220. https://doi.org/10.1037/gpr0000077

Hamby, S., Grych, J., & Banyard, V. (2018). Resilience portfolios and poly-strengths: identifying protective factors associated with thriving after adversity. *Psychology of Violence*, *8*(2), 172–183. https://doi.org/10.1037/vio0000135

Hayes, A. M., Beevers, C. G., Feldman, G. C., Laurenceau, J. P., & Perlman, C. (2005). Avoidance and processing as predictors of symptom change and positive growth in an integrative therapy for depression. I*nternational Journal of Behavioural Medicine, 12*(2):111-122. https://doi.org/10.1207/s15327558ijbm1202_9

Helgeson, V. S., Reynolds, K. A., & Tomich, P. L. (2006). A meta-analytic review of benefit finding and growth. *Journal of Consulting and Clinical Psychology, 74*(5), 797–816. https://doi.org/10.1037/0022-006X.74.5.797

Heintzelman, S. J., & King, L. A. (2014). (The feeling of) meaning-as-information. *Personality and Social Psychology Review*, *18*(2), 153–167. https://doi.org10.1177/1088868313518487

Janoff-Bulman, R. (1989). Assumptive worlds and the stress of traumatic events: Applications of the schema construct. *Social Cognition, 7*(2), 113–136. https://doi.org/10.1521/soco.1989.7.2.113

Joseph, S. (2012). What doesn't kill us: Stephen Joseph discusses the psychology of posttraumatic growth. *The Psychologist, 25*(11), 816-819.

Joseph, S., Williams, R., & Yule, W. (1993). Changes in outlook following disaster: The preliminary development of a measure to assess positive and negative responses. *Journal of Traumatic Stress,* 6, 271–279.

Jöreskog, K. G. (1999, June 22). *How large can a standardized coefficient be?* Retrieved from http://www.statmodel.com/download/Joreskog.pdf on December 29, 2021

Keyes, C. L. (2002). The mental health continuum: from languishing to flourishing in life. *Journal of Health and Social Behavior*, *43*(2), 207–222.

Kilpatrick, D. G., Resnick, H. S., Milanak, M. E., Miller, M. W., Keyes, K. M., & Friedman, M. J. (2013). National estimates of exposure to traumatic events and ptsd prevalence using dsm-iv and dsm-5 criteria. *Journal of Traumatic Stress*, *26*(5), 537–47. https://doi.org/10.1002/jts.21848

Kissane D.W., Lethborg, C., Brooker, J., Hempton, C., Burney, S, Michael, N., Staples, M., Osicka, T., Sulistio, M., Shapiro, J., & Hiscock, H. (2019) Meaning and Purpose (MaP) therapy II: Feasibility and acceptability from a pilot study in advanced cancer. *Palliative & Supportive Care, 1,* 21-28. https://doi.org/10.1017/S1478951518000883.

Klinger, E. (1998). The search for meaning in evolutionary perspective and its clinical implications. In P. T. P. Wong & P. S. Fry (Eds.), The human quest for meaning: A handbook of psychological research and clinical application (pp. 27–50). Mahwah, NJ: Lawrence Erlbaum Associates.

Knipscheer, J., Sleijpen, M., Frank, L., de, G. R., Kleber, R., Ten, H. M., & Dückers M. (2020). Prevalence of potentially traumatic events, other life events and subsequent reactions indicative for posttraumatic stress disorder in the netherlands: a general population study based on the trauma screening questionnaire. *International Journal of Environmen tal Research and Public Health*, *17*(5). https://doi.org/10.3390/ijerph17051725

Kowalska, M., Zięba, M., & Wiecheć Katarzyna. (2021). The narrating self and the experi encing self in the narratives of women who have experienced trauma. *Journal of Con structivist Psychology*, 1–20. https://doi.org/10.1080/10720537.2020.1865221

Li, J.-B., Dou, K., & Liang, Y. (2020). The relationship between presence of meaning, search for meaning, and subjective well-being: A three-level meta-analysis based on the meaning in life questionnaire. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being. 22*(1), 467–489. https://doi.org/10.1007/s10902-020-00230-y

Liberati, A., Altman, D. G., Tetzlaff, J., Mulrow, C., Gøtzsche, P. C., Ioannidis, J. P., Clarke, M., Devereaux, P. J., Kleijnen, J., & Moher, D. (2009). The prisma statement for reporting systematic reviews and meta-analyses of studies that evaluate health care interventions: explanation and elaboration. *Plos Medicine*, *6*(7), 1000100. https://doi.org/10.1371/journal.pmed.1000100

Lin, Y., Xiao, H., Lan, X., Wen, S., & Bao, S. (2020). Living arrangements and life satisfaction: mediation by social support and meaning in life. *Bmc Geriatrics*, *20*(1). https://doi.org/10.1186/s12877-020-01541-8

(*) Linley, P. A., & Joseph, S. (2011). Meaning in life and posttraumatic growth. *Journal of Loss and Trauma, 16*(2), 150–159. doi: 10.1080/15325024.2010.519287

Lipsey, M. W., Wilson, D. B., & Brannick, M. T. (2003). Practical meta-analysis. *Contemporary Psychology*, *48*(1), 82.

Liu, Z., Doege, D., Thong, M. S. Y., & Arndt, V. (2020). The relationship between posttraumatic growth and health-related quality of life in adult cancer survivors: A systematic review. *Journal of Affective Disorders*, 276, 159–168. https://doi.org/10.1016/j.jad.2020.07.044

Lui, S., Gan, Y. (2010). Reliability and validity of the Chinese version of the meaning in life questionnaire, *Chinese Mental Health Journal, 24*(6), 478-482

Maddi, S. R. (1970). The search for meaning. In M. Page (Ed.), Nebraska symposium on motivation (pp. 137-186). Lincoln, NE: University of Nebraska Press.

Martela, F., & Steger, M. F. (2016). The three meanings of meaning in life: Distinguishing coherence, purpose, and significance. *The Journal of Positive Psychology, 11*(5), 531– 545. https://doi.org/10.1080/17439760.2015.1137623

McMillen, J. C., & Fisher, R. (1998). The Perceived Benefit Scales: Measuring

Middleton, H. (2016). Flourishing and posttraumatic growth. an empirical take on ancient wisdoms. *Health Care Analysis: An International Journal of Health Care Philosophy and Policy*, *24*(2), 133–147. https://doi.org/10.1007/s10728-016-0318-2

perceived positive life changes after negative events. *Social Work Research, 22*, 173–187.

Morgan, J., & Farsides, T. (2009). Measuring meaning in life. *Journal of Happiness Studies*, *10*(2), 197–214. https://doi.org/10.1007/s10902-007-9075-0

(*) Mostarac, I., & Brajković L. (2021). Life after facing cancer: posttraumatic growth, meaning in life and life satisfaction. *Journal of Clinical Psychology in Medical Settings.* https://doi.org/10.1007/s10880-021-09786-0

Newman, D. B., Nezlek, J. B., & Thrash, T. M. (2018). The dynamics of searching for mean ing and presence of meaning in daily life. *Journal of Personality*, *86*(3), 368–379. https://doi.org/10.1111/jopy.12321

Nowlan, J. S., Wuthrich, V. M., & Rapee R. M. (2015). Positive reappraisal in older adults: a systematic literature review. *Aging Mental Health, 19*(6), 475-84. https://doi.org/10.1080/13607863.2014.954528.

Páez, D., Reyes, C., & Villagrán, L. (2012). *Evaluación del Crecimiento Postraumático Colectivo en víctimas de catástrofes humanitarias. Manuscrito*. Facultad de Psicología: Universidad del País Vasco.

Park, C. L. (2010). Making sense of the meaning literature: An integrative review of meaning making and its effects on adjustment to stressful life events. *Psychological Bulletin, 136*(2), 257–301. https://doi.org/10.1037/a0018301

Park, C. L., & Gutierrez, I. A. (2013). Global and situational meanings in the context of trauma: Relations with psychological well-being. *Counselling Psychology Quarterly*, *26*(1), 8–25. https://doi.org/10.1080/09515070.2012.727547

Park, C. L., Riley, K. E., & Snyder, L. B. (2012). Meaning making coping, making sense, and post-traumatic growth following the 9/11 terrorist attacks. *Journal of Positive Psychology*, *7*(3), 198–207. https://doi.org/10.1080/17439760.2012.671347

Park, N., Park, M., & Peterson, C. (2010). When is the search for meaning related to life sat isfaction? *Applied Psychology: Health and Well-Being*, *2*(1), 1–13. https://doi.org/ 10.1111/j.1758-0854.2009.01024.x

Prati, G., & Pietrantoni, L. (2009). Optimism, social support, and coping strategies as factors contributing to posttraumatic growth: a meta-analysis. *Journal of Loss and Trauma, 14*(5), 364–388. https://doi.org/10.1080/15325020902724271

(*) Prieto-Ursúa, M. & Jódar, R. (2020). Finding meaning in hell. The role of meaning, Religiosity and spirituality in posttraumatic growth during coronavirus crisis in Spain. *Frontiers Media S.A*. 11:567836. https://doi.org/10.3389/fpsyg.2020.567836

Reker, G.T. (1999). *Manual of Life Attitude Profile – Revised*. Peterborough, ON: Students Psychologists Press.

Russano, S., Straus, E., Sullivan, F. G., Gobin, R. L., & Allard, C. B. (2017). Religiosity predicts posttraumatic growth following treatment in veterans with interpersonal trauma his tories. *Spirituality in Clinical Practice, 4*(4), 238–248. https://doi.org/10.1037/scp0000151

Samios, C., Raatjes, B., Ash, J., Lade, S. L., & Langdon, T. (2020). Meaning in Life Following Intimate Partner Psychological Aggression: The Roles of Self-Kindness, Positive Reframing, and Growth. *Journal of Interpersonal Violence*, *35*(7–8), 1567–1586. https://doi.org/10.1177/0886260519898437

(*) Sawyer, J. S., & Brewster, M. E. (2019). Assessing posttraumatic growth, complicated grief, and psychological distress in bereaved atheists and believers. *Death Studies, 43*(4), 224–234. https://doi.org/10.1080/07481187.2018.1446061

Schulenberg, S. E., Schnetzer, L. W., & Buchanan, E. M. (2011). The purpose in life test-short form: development and psychometric support. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being*, *12*(5), 861–876. https://doi.org/10.1007/s10902-010-9231-9

Schulenberg, S. E., Strack, K. M., & Buchanan, E. M. (2011). The meaning in life questionnaire: Psychometric properties with individuals with serious mental illness in an inpatient setting. *Journal of Clinical Psychology, 67*(12), 1210– 1219. https://doi.org/10.1002/jclp.20841

Sears, S. R., Stanton, A. L., & Danoff-Burg, S. (2003). The yellow brick road and the emerald city: Benefit finding, positive reappraisal coping and posttraumatic growth in women with early-stage breast cancer. *Health Psychology, 22*(5), 487–497. https://doi.org/10.1037/0278-6133.22.5.487

Shaw, A., Joseph, S., & Linley, P. A. (2005). Religion, spirituality, and posttraumatic growth: A systematic review. *Mental Health, Religion & Culture, 8*(1), 1–11. https://doi.org/10.1080/1367467032000157981

Shenkman, G. (2018). The association between basic need satisfaction in relationship and personal growth among lesbian and heterosexual mothers. *Journal of Social and Personal Relationships*, *35*(2), 246–262. https://doi.org/10.1177/0265407516681192

Shenkman, G., Ifrah, K., & Shmotkin, D. (2018). Meaning in Life Among Middle-Aged and Older Gay and Heterosexual Fathers. *Journal of Family Issues*, *39*(7), 2155–2173. https://doi.org/10.1177/0192513X17741922

Sim, B. Y., Lee, Y. W., Kim, H., & Kim, S. H. (2015). Post-traumatic growth in stomach cancer survivors: prevalence, correlates and relationship with health-related quality of life. *European Journal of Oncology Nursing*, *19*(3), 230–236. https://doi.org/10.1016/j.ejon.2014.10.017

Sörensen, Jessica & Rzeszutek, Marcin & Gasik, Robert. (2021). Social support and post-traumatic growth among a sample of arthritis patients: Analysis in light of conservation of resources theory. Current Psychology. 40. https://doi.org/10.1007/s12144-019-0131-9.

Steger, M. F., Frazier, P., Oishi, S., & Kaler, M. (2006). The meaning in life questionnaire: Assessing the presence of and search for meaning in life. *Journal of Counseling Psychology,* 53, 80–93. https://doi.org10 .1037/0022-0167.53.1.80

(*) Steger, M. F., Frazier, P. A., & Zacchanini, J. L. (2008). Terrorism in two cultures: stress and growth following september 11 and the madrid train bombings. *Journal of Loss and Trauma*, *13*(6), 511–527.

Steger, M. F., Kashdan, T. B., Sullivan, B. A., & Lorentz, D. (2008). Understanding the search for meaning in life: Personality, cognitive style, and the dynamic between seeking and experiencing meaning. *Journal of Personality, 76*(2), 199–228. https://doi.org/10.1111/j.1467-6494.2007.00484.x

Steger, F. M., & Samman, E. (2012). Assessing meaning in life on an international scale. *International Journal of Wellbeing*, 23, 182-195. doi:10.5502/ijw.v2.i3.2

Substance Abuse and Mental Health Services Administration. *Trauma-Informed Care in Behavioral Health Services*. Treatment Improvement Protocol (TIP) Series 57, pp. 59-85. HHS Publication No. (SMA) 13-4801, pp.. Rockville, MD: Substance Abuse and Mental Health Services Administration, 2014. Available from: https://www.ncbi.nlm.nih.gov/books/NBK207191/

Sumalla, E.C., Ochoa, C., & Blanco, I. (2009). Posttraumatic growth in cancer: reality or illusion? *Clinical Psychology Review, 29*(1), 24-33. doi: 10.1016/j.cpr.2008.09.006.

Taubman-Ben-Ari, O., Ben Shlomo, S., & Findler, L. (2012). Personal growth and meaning in life among first-time mothers and grandmothers. *Journal of Happiness Studies: An Interdisciplinary Forum on Subjective Well-Being*, *13*(5), 801–820. https://doi.org/10.1007/s10902-011-9291-5

Taubman-Ben-Ari, O., & Weintroub, A. (2008). Meaning in life and personal growth among pediatric physicians and nurses. *Death Studies*, *32*(7), 621–45. https://doi.org/10.1080/07481180802215627

Tedeschi, R. G., & Calhoun, L. G. (1995). Trauma and transformation: Growing in the aftermath of suffering. Thousand Oaks, CA: Sage.

Tedeschi, R. G., & Calhoun, L. G. (1996). The posttraumatic growth inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress*, 9, 455–471. https://doi.org/10.1002/jts.2490090305

Tedeschi, R. G., & Calhoun, L. G. (2004). Target article: "posttraumatic growth: conceptual foundations and empirical evidence". *Psychological Inquiry*, *15*(1), 1–18.

Triplett, K. N., Tedeschi, R. G., Cann, A., Calhoun, L. G., & Reeve, C. L. (2012). Posttraumatic growth, meaning in life, and life satisfaction in response to trauma. Psychological Trauma: *Theory, Research, Practice, and Policy, 4*(4), 400–410. https://doi.org/10.1037/a0024204

van der Spek, N., Vos, J., van Uden-Kraan, C. F., Breitbart, W., Cuijpers, P., Holtmaat, K., Witte, B. I., Tollenaar, R. A. E. M., & Verdonck-de Leeuw, I. M. (2017). Efficacy of meaning-centered group psychotherapy for cancer survivors: a randomized controlled trial. *Psychological Medicine*, *47*(11), 1990–2001.

Vanhooren, S., Leijssen, M., & Dezutter, J. (2018). Coping strategies and posttraumatic growth in prison. *Prison Journal*, *98*(2), 123–142. https://doi.org/10.1177/0032885517753151

Wang, J., Chen, Y., Wang, Y. B., & Liu, X. H. (2011). Revision of the Posttraumatic Growth Inventory and testing its reliability and validity (In Chinese). *Journal of Nursing Science*, *26*(14), 26–28. https://doi.org/10.3870/hlxzz.2011.14.026

(*) Wang, J., She, Y., Wang, M., Zhang, Y., Lin, Y., & Zhu, X. (2021). Relationships among hope, meaning in life, and posttraumatic growth in patients with chronic obstructive pulmonary disease: A cross-sectional study. J*ournal of Advanced Nursing, 77*(1), 244–254. https://doi.org/10.1111/jan.14605

Weathers, L. N., Aiena, B. J., Blackwell, M. A., & Schulenberg, S. E. (2016). The significance of meaning to conceptualizations of resilience and posttraumatic growth: Strengthening the foundation for research and practice. In P. Russo-Netzer, S. E. Schulenberg, & A. Batthyany (Eds.) Clinical perspectives on meaning: Positive and existential psychotherapy (pp. 149–169). Springer International Publishing AG.

(*) Weber, M. C., Pavlacic, J. M., Gawlik, E. A., Schulenberg, S. E., & Buchanan, E. M. (2020). Modeling resilience, meaning in life, posttraumatic growth, and disaster preparedness with two samples of tornado survivors. *Traumatology, 26*(3), 266–277. https://doi.org/10.1037/trm0000210

Winger, J. G., Adams, R. N., & Mosher, C. E. (2016). Relations of meaning in life and sense of coherence to distress in cancer patients: A meta‐analysis. *Psycho-Oncology*, *25*(1), 2–10. https://doi.org/10.1002/pon.3798

Wirtz, A. (Ed.) (2019). Trauma. In *Dorsch Lexikon der Psychologie*. Hogrefe. retrieved from https://dorsch.hogrefe.com/stichwort/trauma on October 25, 2021

Yek, M. H., Olendzki, N., Kekecs, Z., Patterson, V., & Elkins, G. (2017). Presence of mean ing in life and search for meaning in life and relationship to health anxiety. *Psychological Reports*, *120*(3), 383–390. https://doi.org/10.1177/0033294117697084

Yu, Y., Peng, L., Tang, T., Chen, L., Li, M., & Wang, T. (2014). Effects of emotion regulation and general self-efficacy on posttraumatic growth in chinese cancer survivors: assessing the mediating effect of positive affect. *Psycho-Oncology*, *23*(4), 473–478. https://doi.org/10.1002/pon.3434

(*) Zeligman, M., Varney, M., Grad, R. I., & Huffstead, M. (2018). Posttraumatic growth in individuals with chronic illness: The role of social support and meaning making. *Journal of Counseling & Development, 96*(1), 53–63. https://doi.org/10.1002/jcad.12177

Zheng, L., Lu, Q., & Gan, Y. (2019). Effects of expressive writing and use of cognitive words on meaning making and posttraumatic growth. *Journal of Pacific Rim Psychology*, 13. https://doi.org/10.1017/prp.2018.31