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Only some attempts at meaning making are successful: The role of change-relatedness and positive implications for the self

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Abstract

Objective: Although meaning making and specifically autobiographical reasoning are expected to relate to well-being, findings tend to be mixed. Attempts at meaning making do not always lead to meaning made. We aimed to disentangle these complex relationships and also explore the role of level of education.

Method: Ninety participants (mean age 36.73 years, *SD* = 7.27; 74.4% women, 25.6% men) who had experienced the loss of a parent through death, going missing, or Alzheimer's disease narrated this loss, a sad, a turning point, and a self-defining memory, and completed questionnaires assessing depression, trauma symptoms, and protracted grief. Three aspects of autobiographical reasoning (quantity, valence, and change-relatedness of self-event connections) were related to meaning made (sophistication of meaning making) and symptom level.

Results: Years of education correlated both with positive implications of autobiographical reasoning and with meaning made. The quantity, positivity, and change-relatedness of attempts at meaning making (self-event connections) predicted accomplished meaning made, and positivity alone predicted less prolonged grief.

Conclusions: Adapting the life story after a loss such that change of the self is acknowledged and positive change can be constructed helps finding meaning and lowering protracted grief. These changes in narrative identity are supported by more years of education.

KEYWORDS

autobiographical reasoning, education, meaning made, meaning making, narrative identity

1 | INTRODUCTION

Habermas and Bluck (2000) proposed the term autobiographical reasoning for the activity of creating links between remembered events and other distant parts of one's life or to the self and its development, thus, for specifically biographical forms of meaning making. Such explicating of the biographical relevance of memories requires extra mental effort compared to mere remembering (Lavallé et al., 2019). Attempts to understand what happened and what it implies for one's life and identity are often evoked by challenging and disruptive life experiences that affect well-being. However, meaning making attempts are not always successful. Therefore, it is of interest to explore how various aspects

of meaning making attempts relate to meaning made. We first introduce the relationship between broadly defined meaning making attempts and meaning made, and of both with adjustment, then, we introduce the potential relations among three aspects of meaning making attempts and meaning made, to finally discuss the understudied role of education for autobiographical reasoning.

2 | MEANING MAKING-ATTEMPTS, MEANING MADE, AND ADJUSTMENT

Meaning making attempts and meaning made are both important processes for adjusting to critical life events. A variety of operational definitions of meaning making have been used in research (Park, 2010, for a review). Generally, effort or attempts at meaning making are described as the interpretative processes by which people try to understand a stressful experience and to find a way to value it (Taylor, 1983). Attempts at meaning making may not only provide opportunities for attaining meaning, but may also result in negative outcomes (e.g., Davis, Nolen-Hoeksema, & Larson, 1998; Neimeyer, 2016). Meaning made is defined as a basically positive outcome of the attempts at meaning making (e.g., benefit finding, gaining insight; Park, 2010).

Meaning making attempts and meaning made appear to play different roles in coping with adverse experiences. Studies that measure frequency of attempts at meaning making sometimes found negative associations with adjustment (e.g., Roberts, Lepore, & Helgeson, 2006), whereas successful meaning made tends to correlate positively with adjustment (e.g., Wen et al., 2017). Meaning making attempts do not necessarily lead to successful meaning made, but may get stuck in continued, but unsuccessful attempts akin to ruminative thinking (Michael & Snyder, 2005). If, in contrast, attempts at meaning making succeed, resulting in meaning made, it is positively related with adjustment (e.g., Park, Park, & Peterson, 2010). People who succeed in meaning making are better adjusted than those who do not (Davis, Wortman, Lehman, & Silver, 2000; Murphy, Johnson, & Lohan, 2003). Park (2010) concluded in her review of the meaning making literature that despite the rarity of studies that actually test the decisive role of meaning made for the effect of attempts at meaning making, empirical findings partially support (e.g., Manne, Ostroff, Fox, Grana, & Winkel, 2009; cf. Li, Miao, Gan, Zhang, & Cheng, 2016) or at least tend not to contradict that role.

Since Park (2010) published her review, several studies were dedicated to the role of meaning making attempts and meaning made on coping with loss and resultant protracted grief. One study (Zakarian, McDevitt-Murphy, Bellet, Neimeyer, & Burke, 2019) found a relation between a scale measuring the absence of meaning made with protracted grief and Post-Traumatic Stress Disorder (PTSD) in relatives of homicide victims, but no (negative) relation with scales of positive meaning made. More to the point, three studies by Neimeyer and colleagues studied meaning made as mediator or moderator of predictors of protracted grief. Rozalski, Holland, and Neimeyer (2017) found meaning made to mediate the prediction of protracted grief by kind of death and, partially, kind of relationship to the deceased. Bellet, Neimeyer, and Berman (2018) found a moderating, buffering role of meaning made on the prediction of protracted grief by the centrality of the loss in the life of the respondents. Milman and colleagues (2019) found a mediating role of meaning made for predicting protracted grief by a series of risk factors, which in turn was moderated by ruminative tendencies; thus, the stronger the ruminative tendency, the weaker the prediction of protracted grief by meaning made. Finally, Hasson-Ohayon, Peri, Rotschild, and Tuval-Mashiach (2017) found that self-reported integration of the event into self-narrative (a proxy to meaning made) mediated the relation between dissociative tendencies and protracted grief.

None of these studies included both meaning making attempts and meaning made, which may be one reason for the varying mediating and moderating role of meaning made in these studies. Importantly, in most of the studies reviewed above, meaning making and made were self-reported. We now turn to objective studies of meaning making and meaning made, which rely on researchers' coding of narratives.

3 | NARRATIVE MEANING MAKING: VALENCE AND CHANGE-RELATEDNESS

Making sense of a personal experience begins by organizing it through narrating. Narrativizing an experience requires constructing a basic temporal and causal-motivational sequence of events, attributing responsibility to actors (Bartoli & Smorti, 2019; Bruner, 1990). Narratives offer a basic interpretation of experiences, which may be made explicit within narratives by arguments that depart from the narrative sequence and interpret it; this includes what is termed meaning making. When dealing with critical life events like the loss of a relative, integrating the loss into one's understanding of the self and the world by narrating it is deemed by many to play a central role in coping with the loss (e.g., Alves, Niemeyer, Batista, & Gonçalves, 2018).

A variety of characteristics of autobiographical narratives have been related to well-being and absence of symptoms, although most of these studies have been conducted with nonclinical samples without a specific stressor. Adler, Lodi-Smith, Philippe, and Houle (2015) summarized these findings by

categorizing narrative characteristics into four groups, namely structural aspects (e.g., coherence), motives (e.g., agency, communion), valence of evaluations (e.g., positivity-negativity, transformations from bad to good and vice versa, termed redemption and contamination), and meaning making like autobiographical reasoning. They found correlations with well-being mostly for the latter three aspects of narratives.

The few studies on coping with loss that analyzed narratives found that protracted grief was predicted by the absence of positive themes (Maercker, Bonanno, Znoj, & Horowitz, 1998) and by negativity and a lack of agency (Capps & Bonanno, 2000). In an earlier report from the data set used in this study, we reported that lower levels of communion and agency as well as low levels of redemption patterns correlated positively with more protracted grief (Huang & Habermas, 2019, cf. Maccallum & Bryant, 2008, for a similar finding for redemption).

Here, we focus on the role of meaning making and specifically on the biographical meaning of an event, its implications for how narrators understand themselves. Habermas and Bluck (2000) termed such arguments *autobiographical arguments*. They link events to distant other events in a life or to the narrator's self and its development. Inspired by Linde (1993), we differentiated change- and stability-related links. Originally, we had included causal links to a variety of self-states (Habermas & Paha, 2001), and Pasupathi, Mansour, and Brubaker (2007) expanded them and termed them *self-event connections*. We then restricted these autobiographical arguments to causal links of events with statements only about lasting personality traits or values (Habermas & de Silveira, 2008). Following Pasupathi and colleagues (2007), the four kinds of self-event connections are divided into two that establish a link between an event and a stable character trait (stability-maintaining) and two that state that an event either led to a change in personality or values, or to a new insight into one's personality or values (change-engendering). These self-event connections are the central type of autobiographical argument, linking past events with present and future identity, and reflect the search for the biographical meaning of events.

The relation of narrative meaning making to various outcome measures of well-being and mental health tends to be viewed as positive (Adler et al., 2015). However, the evidence is actually more mixed (Bonanno, 2013; McLean & Mansfield, 2011). Therefore, qualifications of the relation between meaning making and adjustment have been suggested, such as considering the exploratory Openness (Pals, 2006) and the flexibility of meaning making (Bonanno, 2013) as well as the short-term versus chronic use of meaning making, all of which may allow to differentiate a helpful from a ruminative use.

Two other qualifications of meaning making have proven successful in differentiating helpful from less helpful uses of meaning making, namely differentiating positive from negative evaluative implications for the self, and differentiating positive growth of the person from other forms of meaning making. Banks and Salmon (2013) showed in a nonclinical sample of young adults that the correlation of the relative frequency of self-event connections with the degree of psychopathology depends on whether the self-event connections had positive or negative evaluative implications for the narrator. Using the same coding, Merrill, Waters, and Fivush (2016) demonstrated that individuals connecting the event to the self in positive ways, relative to those creating connections with negative implications, had lower psychological distress and more post-traumatic growth, regardless of the valence of events they wrote about. This suggests that it is not the mere relative frequency of self-event connections that is related to adjustment, but rather the evaluative implications they have for the narrator's self.

In addition, Lilgendahl and McAdams (2011) stressed the role of narrating positive change of the self, or personal growth, by coding all causal connections in narratives in regard to whether they state a positive change in self, in terms of relationships and insight into the world and oneself. In their study, positive implications for the self again predicted well-being irrespective of the valence of narrated event, whereas personal growth predicted well-being when stated in narratives of negative experiences.

A final, measurement-related differentiation may add to the better prediction of adjustment through qualified meaning making. Autobiographical arguments such as self-event connections are defined formally and are usually measured in terms of relative frequency without judging whether they actually do make sense or not, or whether they are convincing. Therefore, they can be categorized as attempts at meaning making, even with the qualifications of positive valence and growth-orientation just introduced. In contrast, some ratings of meaning making in entire narratives take into account how convincing it is. This is the case with McLean's rating scale of sophistication of meaning making (McLean & Pratt, 2006), which rates the complexity of what is explicitly learn from the narrated experience, and therefore, measures more the meaning made irrespective of how frequently narrators try to make meaning. We suggest that this difference between attempts at meaning making and meaning made is a useful import from the meaning making literature to the narrative literature.

Taken together, narratives offer a window directly onto the meaning making processes which otherwise are only observed and reported by the participants themselves. The present study compares autobiographical reasoning, both attempted and accomplished, in narratives of the loss of a parent and in other autobiographical narratives to test the relationship between attempted and accomplished autobiographical reasoning in narratives and their combined relationship to protracted grief and other symptoms.

4 | EDUCATION MAY FACILITATE AUTOBIOGRAPHICAL REASONING

An additional aim of this study was to explore the possible influence of the level of education on autobiographical reasoning. Education can be considered as one kind of socioeconomic as well as cognitive-communicative resource that can facilitate the acquisition of decontextualized language such as narrative and the mastering of stressful situations (Updegraff, Taylor, Kemeny, & Wyatt, 2002). Hobfoll (1989) suggested that perceptions of stress-related growth and adjustment are heavily dependent on one's preexisting material, social, economic, and personal resources.

However, the influence of the level of education on memory and narrative processes is understudied. Some studies showed that years of education were related to more specific autobiographical memories in a clinical sample (Reid & Startup, 2010) and to earlier first memories in a normative sample (de la Mata et al., 2019; Kingo, Berntsen, & Krøjgaard, 2013). In a study of childhood memories, participants with more years of education provided longer and more self-focused memory reports (de la Mata et al., 2019). In terms of discourse skills, formal schooling fosters decontextualized discourse (Carrillo, de la Mata, & Maria, 2004). Narrative competence is generally associated with level of schooling (Aksu-Koç, 2005). In addition, highly educated mothers, in comparison to less educated ones, were more actively involved in reminiscing with their children using more elaborative devices (Reese & Newcombe, 2007). Although studies aiming to explore the role of level of education in meaning making as well as its relationship with symptoms are scarce, among the studies using self-report measures to assess meaning making or meaning made some found no or only minimal relations with educational level (e.g., Alea & Bluck, 2013; Park, Riley, & Snyder, 2012), whereas others found a strong positive relation to respondents' meaning made of stressful events (e.g., Burke et al, 2015). It is reasonable to assume that as education increases, cognitive skills and social resources also increase, which in turn may support reasoning about the self in positive ways, which in turn may result in more successful meaning made.

5 | RESEARCH QUESTION AND HYPOTHESIS

We used data from a study of autobiographical memory narratives after different kinds of loss (Huang & Habermas, 2019) to study the relationship between various aspects of autobiographical reasoning and symptoms. This study uses different kinds of loss as one example for difficult life experiences which need to be coped with. We pursued a threefold aim: we (1) explored the influence of education on autobiographical reasoning (attempts at meaning making and meaning made), (2) tested the relationship between the quantity of attempts at narrative meaning making and its positivity and change-relatedness on narrative meaning made, and (3) explored the relation of all of these aspects of autobiographical reasoning to symptom load. Our hypotheses were (H1) that the years of education correlate with positive implications for the self of attempts at meaning making and with accomplished meaning made; (H2) that the amount of attempts at meaning making, the positive implications for the self, and the change-relatedness of attempts at meaning making all contribute to the prediction of meaning made; and (H3) that positive implications for self of attempts at meaning making and accomplished meaning making predict lower symptom load. We asked both for memories related and not related to the difficult life experience of loss to explore whether the relations studied were specific for stress-related memories or generalized across memories.

6 | METHOD

6.1 | Sample

Out of 90 adult Chinese participants, 67 were female (74.4%). The age range was 27 to 56 years, ($M = 36.73$, $SD = 7.27$). The level of education ranged from 9 to 19 years ($M = 15.03$, $SD = 2.93$). Thirty participants had lost a parent to death, 30 had a parent gone missing, and 30 took care of a parent with Alzheimer's disease. The loss had to have happened at least 6 months earlier, because this is the average recovery period for bereavement (Prigerson et al., 2009). The study took place in Southern China. Exclusion criteria were (a) a significant psychiatric or neurological illness, (b) a history of clinical depression, (c) serious physical illness, and (d) alcohol or other substance abuse. This project was approved by the Ethical Review Board of the Wuhan Mental Health Center in China (No. KY201620).

6.2 | Procedure

After signing informed consent, participants first freely spoke about their loss experience (not analyzed here), and then, narrated a specific event, which they chose from the entire loss experience (specific loss event narrative). Then, participants were asked for three other specific memories not related to the loss: a sad story, a self-defining memory, and a turning point memory. Each of the four memories could be narrated for up to 5 min. Consequently, participants completed the questionnaires. The entire interview lasted about 65 min.

6.3 | Measures

6.3.1 | Coding and rating of autobiographical reasoning

Narratives were audio-recorded, transcribed, and divided into propositions. All identifying information was replaced with pseudonyms. The first author and another mother-tongue Chinese coder were trained by the second author until achieving satisfactory interrater reliability. The second coder was blind to the hypotheses. Final interrater reliability for each variable was based on 20% of the transcripts. The remaining 80% of transcripts were coded by the first author. Reliability was acceptable for all codes and ratings (kappa or intraclass correlation coefficient (ICC) above .60; Cicchetti, 1994).

6.3.2 | Attempts at meaning making—Self-event connections

We identified the propositions that contained self-event connections (self-event connections) that link statements about personality or values with statements about an event, based on an expanded manual by the second author (Habermas & Paha, 2001; Köber, Schmiedek, & Habermas, 2015). For each self-event connection, we coded one of four types of connection ($\kappa = .84$): change (e.g., "After he had died, I became more independent."), reveal (e.g., "This event made me realize how strong I am."), explanation (e.g., "I continued to search for her for many years, because I am a very conscientious person"), atypical (e.g., "I screamed at him, although I usually never lose my temper"), and one of four kinds of valence of the implications for the self ($\kappa = .87$; inspired by Lilgendahl & McAdams, 2011): negative, positive, neutral, or mixed. Any statement received only one code for type of self-event connection and one for valence. We used relative frequencies of codes (number of codes divided by number of propositions per narrative) to compensate for differences in length of narratives. We interpret the sum of all four self-event connections as measuring the attempts at meaning making that may or may not be successful.

We summed up each two types of self-event connections, *event explains change in aspects of self* and *event reveals unknown aspect of self,* and termed it *change-engendering self-event connections*, as well as *aspects of self explains event* and *event is atypical for the self,* and termed it *stability-maintaining self-event connections*. To reduce the number of variables and because we were interested in these two dimensions, we constructed indicators of the change- versus stability orientation and of the positive versus negative implications of self-event connections for the narrator (termed *positivity of self-event connections*). We calculated two difference scores (positive minus negative self-event connections, ignoring neutral and ambivalent ones, and change-engendering minus stability-maintaining self-event connections), and then, divided each of the two difference scores by all self-event connections, so that these two indicators are independent of the overall relative frequency of self-event connections. Two missing values due to the absence of any self-event connection were replaced by the mean value of the corresponding group in the respective memory.

6.3.3 | Meaning made—Sophistication of meaning making

Each narrative was rated on a 4-point scale for sophistication of meaning making (SMM; McLean & Pratt, 2006; adapted from McLean & Thorne, 2003). The scale assesses the level of complexity in successfully learning from an experience ($r_{ICC} = .89$). A score of 0 was assigned to narratives in which the narrator did not make an effort to explain the meaning of the event. Narratives were scored 1 if there was mention of a specific lesson learned from the event. A score of 2 was assigned to narratives containing some unclear indication of growth, reflection, questioning, realization, or change in the self. Narratives were scored 3 if they contained a plausible insight from the event that applied to broader areas of the narrator's life. We interpret SMM as signaling successful or accomplished meaning making, that is, meaning made.

6.3.4 | Mental health

We measured depression, trauma symptoms, and protracted grief by the Center for Epidemiologic Studies Depression Scale (CES-D; current sample $\alpha = .93$, Radloff, 1977; Chinese version by Zhang, Kong, & Zhou, 2009), PTSD Check List—Civilian Version (PCL-C; $\alpha = .95$; Weathers, Litz, Herman, Huska, & Keane, 1994; Chinese version by Wang, Sui, Li, & Dai, 2010), and Prolonged Grief-13 ($\alpha = .89$; Prigerson, et al., 2009; Chinese version by He, Wang, Tang, Yu, & Xie, 2013).

7 | RESULTS

Specific loss event narratives were between 69 and 378 propositions long ($M = 180.03$, $SD = 63.12$), sad event narratives between 21 and 188 propositions ($M = 95.64$, $SD = 35.51$), turning point narratives between 28 and 256 propositions ($M = 94.31$, $SD = 37.06$), and self-defining memory narratives between 36 and 197 propositions ($M = 103.11$, $SD = 37.68$). The mean time since the loss event ranged from 1 to 34 years with a mean of 9.06 years ($SD = 7.83$). To test the first and third hypothesis, we averaged values for autobiographical

reasoning across all four memory narratives. Hypothesis 2 about the relationship between aspects of meaning making was tested at the level of memories.

For descriptive purposes, we ran zero-order and partial (age, education) correlations between time since loss, age, and education with all autobiographical reasoning (averaged across memories) and symptom variables. Both age and education were significantly negatively correlated with all three symptom scores (see Table 1), but not time since loss. In the following analyses, age and education were controlled for when they correlated with the dependent variable. When rerunning all analyses without controlling for age and education, patterns of significance remained the same, and coefficients were of comparable or larger size.

7.1 | Autobiographical reasoning and educational level

To test Hypothesis 1 of a correlation between educational level and amount of attempting to make meaning with positive evaluations of the self (positivity of self-event connections) and with meaning made (SMM), we averaged the meaning making variables across all four narratives. Because education was also positively related to age, we partialled out age, resulting in significant partial correlations of education with positivity of self-event connections, $r_p = .33$ ($p < .01$) and with SMM of $r_p = .38$ ($p < .001$).

7.2 | Associations between aspects of meaning making attempts and meaning made

We first explored the relationship between autobiographical reasoning variables. Exploratory zero-order and partial correlations run across all 360 memories show small correlations of meaning made with both the frequency of attempts at meaning making and its positivity, but not for its change-relatedness (Table 2). To test the simultaneous prediction of meaning made by the relative frequency of meaning making attempts (self-event connections) as well as their positive implications for the self (positivity of self-event connections) and their change-relatedness (of self-event connections) and to explore whether these relations differed by the kind of memory narrated, we ran multilevel models with the four memories (Level 1) nested as repeated measurement in participants (Level 2). Analyses were conducted using the R package nlme (Pinheiro, Bates, DebRoy, Sarkar, & R Core Team, 2019), using maximum likelihood estimation, a random intercept at Level 2, and an unstructured and variance-heterogeneous covariance matrix for the Level 1 residuals.

In a sequence of five models with SMM as the dependent variable, predictor variables were included in the following order (see Table 3): (1) education as a covariate, (2) relative frequency of meaning making attempts, (3) positivity and change-relatedness of self-event connections, (4) kind of memory as an experimental factor, and (5) interaction terms of kind of memory and the three meaning making frequency predictor variables.

TABLE 1 Correlations between demographic variables, symptoms, and autobiographical reasoning variables averaged across all four memory narratives, zero-order, and age partialled outs

		1	2	3	4	5	6	7	8	9	10
1	Age	–									
2	Education	.27**	–								
3	Time since loss	−.07	−.00	–							
4	Depression	−.28**	−.26*	.04	–	.81***	.56***	−.01	−.16	.10	−.23*
5	PTSD	−.30**	−.27*	.10	.84***	–	.70***	.00	−.16	.03	−.16
6	Prolonged Grief	−.27**	−.35**	.02	.61***	.74***	–	−.04	−.34**	.09	−.28**
7	Self-event connections (%)	.01	.08	.05	−.03	−.02	−.07	–	−.16	−.08	.04
8	Positivity of self-event connections	.13	.35**	.12	−.24*	−.25*	-.42***	−.12	–	−.14	.45***
9	Change-engendering vs. stability-maintaining self-event connections	−.17	−.10	.21*	.15	.09	.14	−.09	−.17	–	.01
10	SMM	−.10	.33**	.20	−.24*	−.18	−.32**	.07	.50***	.01	–

Note: Zero-order correlations are shown in the lower left triangle, and correlations with education and age partialled out in the upper right triangle.

Abbreviation: SMM, sophistication of meaning making.

***$p < .001$; **$p < .01$; *$p < .05$.

TABLE 2 Correlations among the four variables of autobiographical reasoning at the level of memory narratives ($n = 360$), zero-order, and age partialled out

		1	2	3	4
1	Self-event connections (%)	–	.15	.04	.25
2	Positivity of self-event connections	.15	–	−.04	.30
3	Change-engendering vs. stability-maintaining Self-event connections	.04	−.05	–	.14
4	Sophistication of Meaning Making	.25	.32	.14	–

Note: Zero-order correlations are shown in the lower left triangle, and correlations with education and age partialled out in the upper right triangle.

TABLE 3 Multilevel models for the prediction of sophistication of meaning making (SMM)

Effect	Model 1	Model 2	Model 3	Model 4
Intercept	1.82* (.20)	1.45* (.22)	1.40* (.22)	1.14* (.23)
Education	.05* (.01)	.04* (.01)	.04* (.01)	.04* (.01)
Self-event connection (%)		.10* (.02)	.08* (.02)	.06* (.02)
Positivity of self-event connections			.02* (.01)	.02* (.01)
Change-relatedness of self-event connections			.02* (.01)	.01* (.01)
Sad vs. loss memory				.50* (.01)
Turning point vs. loss memory				.51* (.01)
Self-defining vs. loss memory				.09 (.01)
	Variances of random effects			
Intercept	.08	.06	.04	.03
Residual variance loss memory	.79	.71	.60	.53
Residual variance sad memory	.45	.37	.39	.34
Residual variance turning point memory	.51	.41	.38	.35
Residual variance self-defining memory	.70	.66	.57	.51
	Model fit			
Deviance	741.19	711.08	690.17	645.60
Comparison with preceding model (χ^2[df])	n.a.	30.11 [1]*	20.91 [2]*	44.57 [3]*

Note: Parentheses denote standard errors of the estimates of fixed effects. Correlations of Level 1 residuals for different memories were freely estimated (not shown in table).

*$p < .05$.

As shown in Table 3, the effects of self-event connections and positivity and change-relatedness of self-event connections were positive and significant when first entered in the model and remained significant when further predictors were entered. The different kinds of memories differed significantly from each other. The dummy-coded contrasts indicated that sad and turning point memories had significantly higher SMM than loss memories, while

TABLE 4 Regression analyses predicting depression, PTSD, and prolonged grief with autobiographical reasoning variables averaged across all four memory narratives

	Step 1		Step 2		Step 3		Step 4	
	B	*SE*	*B*	*SE*	*B*	*SE*	*B*	*SE*
DV: Depression								
Age	−.38*	.18	−.38*	.18	−.35	.18	−.43*	.18
Education	−.82	.44	−.82	.44	−.58	.47	−.38	.48
Self-event connections (%)			−.14	1.10	−.32	1.11	−.07	1.11
Positivity of self-event connections					−.54	.39	−.19	.44
Change-engendering vs. stability-maintaining self-event connections					.42	.58	.52	.57
SMM							−6.09	3.55
R^2	.11		.11		.14		.17	
ΔR^2	.11**		.00		.03		.03	
DV: PTSD								
Age	−.53*	.22	−.53*	.23	−.51*	.23	−.56*	.24
Education	−1.07	.56	−1.07	.56	−.76	.60	−.63	.62
Self-event connections (%)			.002	1.40	−.32	1.42	−.15	1.43
Positivity of self-event connections					−.74	.50	−.50	.56
Change-engendering vs. stability-maintaining self-event connections					.04	.73	.10	.74
SMM							−4.11	4.57
R^2	.13		.13		.15		.16	
ΔR^2	.13**		.00		.02		.01	
DV: Prolonged grief								
Age	−.26	.14	−.26	.14	−.23	.13	−.28*	.14
Education	−.99**	.34	−.98**	.34	−.57	.35	−.45	.35
Self-event connections (%)			−.35	.85	−.76	.82	−.61	.82
Positivity of self-event connections					−.96**	.29	−.76*	.32
Change-engendering vs. stability-maintaining self-event connections					.12	.42	.17	.42
SMM							−3.55	2.62
R^2	.16		.16		.26		.28	
ΔR^2	.16**		.002		.11**		.02	

Abbreviations: DV, dependent variable; SMM, sophistication of meaning making.

**$p < .01$; *$p < .05$.

self-defining memories did not differ significantly from loss memories. Including the interaction terms of kind of memory and the three meaning making predictor variables (not included in Table 3) did not significantly improve model fit ($\chi^2[9] = 11.75$, $p > .05$), so that interactions were not explored further.

7.3 | Associations between autobiographical reasoning and symptoms

We tested the third hypothesis that positive and change-related attempts at meaning making, mediated by successful meaning made, negatively predict symptoms, by averaging autobiographical reasoning variables across all four memories. When partialling out education and age, positive attempts at meaning making (self-event connections) were negatively related to protracted grief, and successful meaning making correlated negatively with protracted grief and depression (see Table 1). To test the relation with symptoms simultaneously for these predictors, we ran regression analyses separately for each symptom (see Table 4). Age and education were both included in the first step of all regression analyses as control variables, given their significant correlations with the symptoms. Relative frequency of meaning making attempts was entered in a second step of the analysis, their positivity and change-relatedness in a third step, and successful meaning made in a fourth step. Results showed that only the model predicting protracted grief resulted in significant regression weights. Narrators who used more positive self-event connections exhibited lower levels of protracted grief.

7.4 | Exploration of differences between memories

To explore the relative weight of each of the memories when predicting symptoms (H3), we calculated partial correlations, controlling for age and education, between the variables within each of the four memories separately. The positivity of self-event connections was significantly negatively related to protracted grief only in loss memories ($r = -.37$, $p < .01$) and self-defining memories ($r = -.21$, $p = .05$), more change related self-event connections were significantly related to more protracted grief only in loss memories ($r = .25$, $p < .05$). Additionally, individuals who had made more meaning (SMM) in their turning point memories showed less protracted grief ($r = -.24$, $p < .05$). Depression was significantly negatively related to meaning made (SMM) in loss memories ($r = -.36$, $p < .01$) and positivity of self-event connections in self-defining memories ($r = -.24$, $p < .05$). PTSD was significantly negatively related to meaning made (SMM) in loss memories ($r = -.23$, $p < .05$). The mere relative frequency of self-event connections did not relate to any symptoms in any of the different memories.

Finally, self-defining and turning point memories are considered highly relevant for identity but differ in the relation of their characteristics to measures of well-being (McLean, Pasupathi, Greenhoot, & Fivush, 2017). We were interested in whether they elicit different kinds of autobiographical reasoning, specifically in whether turning point memories presented more change-engendering than stability-maintaining self-event connections compared to self-defining memories. A *t* test for repeated measurements showed that indeed self-event connections in turning point memories were more change- versus stability related than in self-defining memories ($t = 5.16$, $p < .001$).

8 | DISCUSSION

The purpose of this study was to examine associations between frequency and qualities of meaning making attempts and resulting meaning made. In addition, it aimed at determining their association with educational level and symptom level.

As predicted, educational level was positively related to positive attempts at meaning making, successful meaning made, and a lower symptom load, but unrelated to the mere relative frequency of attempts at meaning making and to their focus on change versus stability. One explanation from a stress process perspective (Pearlin, 2010; Pearlin, Lieberman, Menaghan, & Mullan, 1981) is that education buffers against stress because level of education is related to social class and associated psychosocial resources (e.g., Cai & Wu, 2019). This study does not allow to differentiate such a general influence of sociocultural capital from a more direct influence of education via general cognitive abilities (Ritchie & Tucker-Drob, 2018) or specific linguistic abilities for using decontextualized language and reasoning such as used in narrating, which in turn might support the ability to make sense of events.

Focusing on autobiographical narrating and reasoning, findings from a study by Aksu-Koç (2005) suggest that not only schooling experience contributes to remembering and narrating the personal past (e.g., cognitive strategies used in discourse organization), but also the educational background at home, partially mediated by the parental reminiscing style (e.g., Fivush, 2014). Specifically, highly educated mothers shared past events with their children more frequently and used more elaborative reminiscing style than less educated mothers did (Lai, 2004), which in turn was related to better socio-cognitive child outcomes. Because the ability to narrate one's story is a key aspect of developing communicative competence (e.g., Champion, McCabe, & Colinet, 2003), highly educated individuals may have good communicative competence, opening access to greater support resources and more satisfying interactions with others, which in turn may expand their ability of making sense of negative events.

Overall, these findings suggest that more years of education correlate with the tendency to find positive implications

of stressful events for the self and with the probability of eventually succeeding in meaning making. It remains unclear to which degree this is a more psychological or a more socio-economic advantage.

Out of the different aspects of autobiographical reasoning, the relative frequency of attempts at meaning making as well as the positivity of their implications and their change-engendering tendency were, as expected, related to the degree of successful meaning made, also when controlling for age and education. However, protracted grief was predicted not by all of these variables, but only by the positivity of attempts at meaning making and by meaning made; positivity was the sole predictor when both variables were tested concurrently. The predictive power of the positivity of self-event connections was based primarily on the loss narratives. Our findings confirm that meaning made presupposes attempts at meaning making, but that such attempts by themselves are not sufficient to predict a reduction in symptoms.

The findings confirm the foremost importance of positive implications of attempts at meaning making for predicting fewer symptoms of protracted grief after having experienced a loss. This relation mainly regards autobiographical reasoning about the loss itself, and to a lesser degree or not at all reasoning about other experiences. This may indicate that it is less a general individual trait of generally tending to draw positive lessons from experiences but the specific reaction to specific stressors that influences the symptom load. Alternatively, the loss memory was more predictive than the other memories because it was by far the most distressing memory compared to the other memories, and only reactions to really distressing experiences reveal individuals' ability to cope narratively.

The second quality of autobiographical reasoning studied, besides valence, was its change- versus stability-relatedness, which also predicted meaning made, but not symptoms. Possibly the change-related autobiographical arguments in many cases also had negative implications. This demonstrates that the concept of personal growth is a variant of valence. Our findings point to the conclusion that it is not the change-component in itself that influences symptom load, but specifically positive self-change (which we did not specifically measure). This resembles the concept of redemption versus contamination sequences, which McAdams and colleagues (2001) have shown to be closely related to well-being.

This study had the advantage of being able to identify autobiographical reasoning in several kinds of autobiographical memories. For example, we could show that asking for memories typical of the self-led to the use of more stability-maintaining self-event connections, whereas asking for turning point experiences evoked more change-engendering self-event connections. In contrast to many studies of meaning making, we studied actual narratives, and thus, observed reasoning-in-action, and not just self-reported frequencies of reasoning. Also, in contrast to many narrative studies, this study focused on individuals who had experienced a specific stressor, which helps eliciting narratives that actually focus on coping with that stressor. The use of control narratives allowed exploring whether meaning making predicted lower symptom load if used across the board or only when specifically used for narrating the stressful experience.

This study has several limitations. It is limited to a single culture, so that its generalizability to other cultures remains an open question. Also, we studied a highly specific stressor, adults' nonviolent loss of a parent. We cannot tell on the basis of this study whether our findings generalize to meaning making in other kinds of loss, and, more importantly, to other kinds of stressful life experiences. We are not aware of studies comparing meaning making in loss compared to other stressful situations.

A main disadvantage of the present study is its cross-sectional design. Coping is a process that requires being studied at several points in time, because the relation between narrative qualities and coping success probably depends on the point in time of the coping process. For instance, searching for meaning measured by self-report decreased significantly from 6 to 18 months of bereavement in those who coped well with the loss, whereas the finding of meaning did not show any significant effects of coping over time (Bonanno, Wortman, & Nesse, 2004). After the 9/11 attacks, engaging in meaning making (self-report) as an immediate response was related to poorer adjustment, whereas meaning made predicted lower PTSD symptom load (Updegraff, Silver, & Holman, 2008). Finally, we pointed to several factors that probably also play a role in the narrative processing of problematic experiences that were not measured, such as a repetitive, cyclical ruminative use of meaning making and, with the reverse effects, a flexible and exploratory use of meaning making. Also, we did not measure the positivity and change-relatedness of meaning made, which would have allowed a better differentiation of their role compared to the role of attempted versus achieved meaning making.

These strengths and limitations of the study point to open questions to be addressed in future studies. Narrative autobiographical reasoning should be studied not only for the nonviolent loss of a parent, but also for other kinds of loss as well as for other kinds of stressful experiences such as life-threatening illness. However, it would also be interesting to study narrative coping with more mundane experience such as normative transitions. In addition, future research studies can test whether education moderates the association between effort expended at meaning making and self-reported meaning in life. Foremost, though, we call for the study of narrative coping with specific events over time to adequately study the process of coping and to differentiate processes of coping from possibly resulting stable changes in narrative identity.

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CONFLICT OF INTEREST

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request. The data are not publicly available due to privacy or ethical restrictions.

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