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Meaning-Making and Rumour-Mongering in the Shadow of Terrorism: The Case of the Charlie Hebdo Attack in Paris

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Abstract

The January 7, 2015 Charlie Hebdo terrorist attack in Paris shattered French civilians' sense of security and also their sense of the surrounding world. This quasi-longitudinal study investigates the temporal dynamics of meaning-making and rumour-mongering processes of French civilians (N = 161) in a real-world, post-terrorist context. The present study was conducted via questionnaire at three points in time (i.e. one week, one month and two months) following the January 7, 2015 terrorist attack in Paris. In line with the social stage model of collective coping with disasters (Pennebaker & Harber, 1993), the main results suggest that participants' coping process of searching for meaning decreased progressively over the two-month period. However, participants' finding the presence of meaning as an outcome did not differ across time. Moreover, participants' belief in rumours and official information was stable over the two-month period. Such findings point to the importance of considering the temporal perspective in order to provide a better understanding of laypeople's symbolic responses to terrorism.

Keywords: terrorism, meaning-making, rumour-mongering, official information, time

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At the dawn of the 21st century, the world entered a new era of terrorism. Images in mass media of the collapsing World Trade Center towers in New York City in September 2001 marked people's collective memory. The past decade has been characterized by an increase in the impact of terrorism worldwide (Institute for Economics and Peace, 2018). France in particular was affected by appalling terrorist attacks in January and November 2015. The gun attack that occurred on January 7, 2015 targeted journalists and cartoonists from the satirical *Charlie Hebdo* journal office in Paris, which repeatedly published controversial cartoons of the prophet Muhammad. The attack was followed by shooting and hostage taking in a kosher supermarket of southern suburbs of Paris by an accomplice in crime. The pursuit of terrorists by French Terrorism Task Forces continued in northern suburbs of Paris where the terrorists were killed two days later. Such frightening context shattered French laypeople's sense of physical and symbolic security and also their sense of the surrounding world. These days of terror were followed by surges

of spontaneous anti-terrorism manifestations all over the French territory. The biggest manifestation in modern French history (Le Parisien, 2015; Mayer & Tiberj, 2016) took place on January 11, 2015 in Paris's *place de la République* where more than a million of laypeople paid tribute to the victims of the terrorist attack primarily by the emblematic slogan "*Je suis Charlie*" ("I'm Charlie") and holding up pencils to express their grief caused by the terrorist attack and their deep attachment to the French fundamental democratic values, the freedom of expression in particular. The Charlie Hebdo terrorist attack had a strong symbolic value for French civilians because the freedom of expression is one of the main principles of French Republic rooted in the Declaration of the Rights of Man and of the Citizen, established in 1789 (*Déclaration des Droits de l'Homme et du Citoyen*, 1789).

Terrorism is a form of violence that aims to elicit fear from civilians in order to attract attention or induce changes in people's social and political attitudes (Marsella, 2004). Despite the multiplicity of definitions (Schmid, 2004), terrorism refers univocally to unpredictable and unanticipated act of strategic violence which generates an aversive state of general insecurity and prompts a range of adaptive responses of adjustment to trauma (e.g., Cohen-Louck & Ben-David, 2017; McCormack & McKellar, 2015). Moreover, terrorist attacks – as well as any other large-scale societal threat – cause a disruption between people's usual expectations and the reality, which became suddenly unstable and unpredictable (Orfali, 2005; Updegraff, Silver, & Holman, 2008). Terrorism is therefore a complex, real-world threat that influences a range of psychosocial phenomena at the individual and collective levels (e.g., Conejero & Etxebarria, 2007; Dinesen & Jæger, 2013; Fritsche, Jonas, & Kessler, 2011; Huddy & Feldman, 2011; Orehek et al., 2010).

Meaning-Making in the Context of Terrorism

Unanticipated disasters and extreme events, such as terrorist attacks, lead to the collapse of representations of reality among human beings, thereby heighten the need for understanding of the event (Weick, 1993). Indeed, in line with the assumption of existentialist authors such as Nietzsche (1883/2004), Yalom (1980) or Frankl (1959/2006), human beings are primarily and innately meaning seekers, and the presence of meaning in life contributes to individuals' well-being (Cohen & Cairns, 2012). In general, "meaning" refers to the understanding of people's experiences. Baumeister (1991) has defined meaning in a broad sense of term as "shared mental representations of possible relationships among things, events and relationships" (p. 15). Thus, meaning is primarily a relationship which allows for connections between different elements (Baumeister, 1991). Meaning-making refers to "the ways what we make sense of ourselves and our environment, the feelings that are aroused when these understandings are constructed or violated, and the common ways in which we respond to these violations." (Proulx, Markman, & Lindberg, 2013, p. 4-5). Moreover, the Meaning Maintenance Model (MMM) offers one of the most complete and parsimonious elaborations of meaning which is apprehended as a set of coherent relational patterns that underlie the perceived predictability of the world (Heine, Proulx, & Vohs, 2006). According to the MMM, "meaning is the expected relationships or associations that human beings construct and impose on their worlds" (Heine et al., 2006, p. 90) and the perceived breakdowns of these associations lead to a greater subsequent effort to reconstruct them. Specifically, the hydraulic nature of MMM offers an explanation of human beings' compensatory mechanisms to meaning threats. The fluid compensation following meaning threats occurs across different domains such as self-esteem, certainty, belongingness and symbolic immortality.

Thus, one of the basic assumptions is that people possess global orienting mental frameworks that provide pre-existing cognitive schemas allowing to interpret their experiences (Lepore, Silver, Wortman, & Wayment, 1996; Park, 2010). Although, scholars have tended to identify specific dimensions of meaning and their particular functions

in human life (e.g., Martela & Steger, 2016; Park & Folkman, 1997; Reker & Wong, 2012; Steger, 2012). Indeed, meaning has been conceptually refined as a two-level concept: *global meaning* which refers to the generalized level of meaning and individuals' pre-existing belief systems, goals and feelings that are rooted in early life, whilst *situational meaning* refers primarily to the interaction between individuals' global meaning and the particular situational circumstances (Park, 2010; Park & Folkman, 1997). Furthermore, other scholars distinguished three specific components of meaning. Firstly, the cognitive component, which is the cornerstone of meaning, refers to people's making sense of the world and their experience in life. The cognitive component relates to the individuals' pre-existing belief systems and their existential understandings of events. Secondly, the motivational component of meaning refers primarily to the individual's value systems and the pursuit of one's future-oriented aims and goals as a source of meaning to individual's existence. Finally, the affective component refers to the feelings of happiness, fulfilment and satisfaction related to reaching one's aims and goals (Reker & Wong, 1988, 2012). Likewise, Martela and Steger (2016) distinguished three facets of meaning that accomplish different functions in human life. Firstly, *coherence* relates to the cognitive component of meaning, specifically the coherence that people are able to discern in life and events. Further, *purpose* refers to the motivational aspects of meaning, namely the future-oriented aims and goals that people have chosen to pursue, and the *significance* refers primarily to the worth and the inherent perceived value of one's life.

Terrorism, as a large-scale societal threat, shatters the human beings' usual comprehensibility and predictability of the reality. Thus, the central cognitive component of meaning that relates primarily to the human beings' ability to render the life and the world coherent and comprehensible (Martela & Steger, 2016; Reker & Wong, 1988, 2012) is particularly threatened in the context of terrorism. Life and world seem comprehensible when people are able to discern coherent patterns that make sense of the whole (Martela & Steger, 2016), and these coherent belief systems provide an essential antidote to individuals' ontological anxiety (Reker & Wong, 1988). Ontological anxiety refers to the ultimate form of threat to human beings which is the threat of extinction (Hendrix, 1967). Indeed, according to the Terror Management Theory (Pyszczynski, Solomon, & Greenberg, 2015), the humans' awareness of the inevitability of their own death is particularly salient in threatening contexts such as terrorism. The presence of terrorist threat leads people to restore their shattered sense of security and increase in existential anxiety related to the death awareness by an increased adherence to their pre-existing belief systems and worldviews (Pyszczynski, Solomon, & Greenberg, 2003).

Since meaning-making appears as an essential antidote to individuals' existential anxiety in threatening contexts, two separate constructs need to be distinguished, namely the presence of meaning as an outcome and the underlying coping process of searching for meaning (Steger, Frazier, Oishi, & Kaler, 2006). Indeed, the desire for epistemic comprehension of reality motivates people to expend effort to understand the threatening event (Taylor, 1983) and reduce the discrepancy between their appraised meaning of the current situation and their usual pre-existing belief systems (Joseph & Linley, 2005). The search for meaning process constitutes one of the core human beings' motivations (Frankl, 1959/2006) and Yalom (1980) argued that search for meaning is primarily a search for coherence. The search for meaning process in the context of threatening events relates primarily to the question: "What is the significance of the event?" (Taylor, 1983, p. 1161). Thus, the dynamic process of searching for meaning tends to decrease when an individual reached the outcome of presence of meaning (Steger & Kashdan, 2007).

Consequently, meaning-making is central to people's recovery from individual and collective traumatic events (e.g., Park, 2010, 2016; Updegraff et al., 2008). Therefore, one of the main adaptive reactions to collective negative

events, such as terrorism, is an attempt to make sense in the immediate aftermath of the terrorist attack and assimilate the event into individuals' pre-existing belief systems to overcome the trauma (Updegraff et al., 2008). Specifically, meaning-making contributes to restore the feeling of individuals' invulnerability (Park & Folkman, 1997), the sense of control (Hobfoll et al., 2007), and allow people to manage the uncertainty of extreme situations (Barton, Sutcliffe, Vogus, & DeWitt, 2015). Additionally, meaning-making in the context of traumatic collective events, such as terrorism, is also irrevocably underpinned by social sharing processes as an integral part of the individuals' recovery mechanisms (e.g., Park, 2016; Pennebaker & Harber, 1993; Rimé, Páez, Basabe, & Martínez, 2010).

Rumour-Mongering in the Context of Terrorism

Indeed, meaning-making occurs primarily through language and communication processes (Baumeister, 1991; Holtgraves & Kashima, 2008). As a semiotic tool, language allows people to convert their experiences into meaning. The creation and exchange of meaning through interpersonal communications construct shared reality on the basis of social verification processes (Berger & Luckmann, 1966; Hardin & Higgins, 1996). Thus, language facilitates the spread of shared understanding of an emotionally charged event from one person to another through social sharing processes (Rimé, 2005, 2009). Such interpersonal sharing supports the propagation of emotional information via relationship networks within society (Christophe & Rimé, 1997; Rimé & Christophe, 1997). The increased need to search for meaning and an attempt to find the presence of meaning in the context of traumatic terrorist events can assume various forms, as mentioned above. One such form is the emergence of rumours, through which people develop some meaning of fearful, uncertain and ambiguous circumstances that surround the terrorist attack.

Indeed, scholars have reported rumour-mongering in the contexts of crises (DiFonzo & Bordia, 1997; Rouquette, 1975), threats (DiFonzo & Bordia, 2007a), wars (Allport & Lepkin, 1945; Caplow, 1947; Knapp, 1944) and uncommon situations, such as natural disasters (Prasad, 1935; Thomas, 2007). Rumour-mongering remains ubiquitous in post-terrorist contexts, despite the rarity of psychosocial social research conducted on the phenomenon of rumours in the context of terrorism. Rumours are "shared understandings in progress that may influence behavior in dramatic ways" (DiFonzo & Bordia, 2007b, p. 275). Specifically, rumour-mongering is driven by individuals' epistemic motivations, particularly the core process of "effort after meaning" (Bartlett, 1932; DiFonzo & Bordia, 2007a), situational uncertainty (Caplow, 1947; Schachter & Burdick, 1955), situational ambiguity (Allport & Postman, 1947), personal uncertainty (Prasad, 1935; Rosnow, 1991), personal anxiety (Bordia & Rosnow, 1998; Rosnow, 1991) and personal belief in the rumour (Prasad, 1935; Rosnow, 1991).

Rumours have been defined as "unverified and instrumentally relevant information statements in circulation that arise in contexts of ambiguity, danger or potential threat and that function to help people make sense and manage risk" (DiFonzo & Bordia, 2007a, p. 13). People tend to find meaning in events and situations by constructing rumours (Allport & Postman, 1947), although such search for meaning could instead be perceived as a profoundly social process of collective effort after meaning (Bordia & DiFonzo, 2004; Shibutani, 1966). From this perspective, rumours can be comprehended as a "mental makeshift job" that aims to solve collective issues in problematic situations (Rouquette, 2006, p. 46). Thus, rumours aid people in making-making of the surrounding world at the individual and collective levels by interacting with others (DiFonzo & Bordia, 2007a). However, rumours are also "improvised news" that emerge in crisis situations and which reflect collective effort to obtain meaning when official communications are insufficient (Shibutani, 1966). The main difference between rumours and information provided by official

sources stands on the fact that rumours are unproven or unverified information (Rosnow, 1974). Social sharing with others intensifies belief in rumours by contributing to the flow of unverified or false information within society, and it therefore hinders people's comprehension of reality (Garrett, 2011).

The social stage model of collective coping with disasters (Pennebaker & Harber, 1993) initially formalised the temporal dynamics of social sharing processes week by week. The model specifically identifies three main stages in the way people share their experiences of a collective disaster with others. The *emergency phase* lasts for two weeks and is marked by intensive interpersonal sharing. The subsequent *inhibition phase* extends for six weeks following the societal event and is characterised by a significant decrease in interpersonal sharing. Finally, the *adaptation phase* takes place from six weeks onwards and entails a return to low levels of interpersonal sharing of experiences. In line with this model, a similar pattern of social sharing of emotionally charged information has been apparent over a two-month period in post-terrorist contexts (Pelletier & Drozda-Senkowska, 2016; Rimé et al., 2010). Although, temporality might affect also related meaning-making and rumour-mongering processes following a terrorist attack, the scientific literature has rarely explored the temporal perspective (for exceptions, see Bordia & Rosnow, 1998; Murphy, Johnson, & Lohan, 2003; Updegraff et al., 2008).

To address this research gap, the main aim of the current study was to extend the longitudinal approach of the social stage model of collective coping with disasters (Pennebaker & Harber, 1993) to the meaning-making and rumour-mongering processes in a real-world, post-terrorist context. Specifically, despite the ubiquity of rumours in post-terrorist contexts, the rumour-mongering process has not been studied yet from the psychosocial perspective in the context of terrorism. Moreover, little is known about the temporal dynamics of meaning-making and rumour-mongering processes in a real-world context of societal threat. Thus, in line with the social stage model of collective coping with disasters (Pennebaker & Harber, 1993), we hypothesized that the extent of meaning-making and rumour-mongering processes will reach high values at one week following the terrorist attack, it would diminished by half at one month after the attack, and it would decreased to low values at two months following the attack. The second aim of this study was to investigate the specific relationship between meaning-making and rumour-mongering processes in a real-world context to enhance present understandings of laypeople's symbolic responses to terrorism.

Method

Participants

Participants ($N = 161$) were French laypeople who were recruited from passers-by on the Republic Square (*Place de la République*) in Paris. These data were collected as a part of the first author's doctoral dissertation research (Pelletier, 2016). In line with the probability sampling procedure, the first author randomly approached participants at three points in time: one week (Time 1, $N = 55$), one month (Time 2, $N = 53$) and two months (Time 3, $N = 52$) following the January 7, 2015 terrorist assault in Paris. One participant was a minor and was therefore excluded from data analyses. Participants directly completed an anonymous, paper-and-pencil questionnaire in the Republic Square in Paris and were subsequently fully debriefed. The age of participants ranged from 18 to 74 years ($M = 35.79$, $SD = 15.46$). Table 1 presents further details about the sociodemographic characteristics of participants at each of the three measurement times. Notably, 58.1% of respondents reported participation in solidarity and anti-terrorist demonstrations in France that took place following the terrorist attack.

Table 1

Participants' Sociodemographic Characteristics at Three Measurement Times

Characteristic	Total	Time 1	Time 2	Time 3
Age, <i>M</i> (<i>SD</i>)	35.79 (15.46)	36.73 (15.99)	35.60 (15.41)	35.01 (15.17)
Gender, <i>n</i> (%)				
Male	70 (43.80)	24 (43.60)	22 (41.50)	24 (46.20)
Female	90 (56.30)	31 (56.40)	31 (58.50)	28 (53.80)
Living Area, <i>n</i> (%)				
Paris	75 (49.70)	24 (43.60)	24 (52.20)	27 (54.00)
Suburbs	48 (31.80)	19 (34.50)	14 (30.40)	15 (30.00)
Other	28 (18.50)	12 (21.80)	8 (17.40)	8 (16.00)
Educational Attainment, <i>n</i> (%)				
College	20 (12.50)	6 (11.00)	7 (13.20)	7 (13.50)
HS Diploma	35 (21.90)	10 (18.20)	13 (24.50)	12 (23.10)
< 4 years HS	53 (33.10)	24 (43.60)	15 (28.30)	14 (27.00)
Graduate	52 (32.50)	15 (27.30)	23 (34.00)	19 (36.50)
Religious Affiliation, <i>n</i> (%)				
Yes	55 (34.40)	17 (30.90)	19 (35.80)	19 (36.90)
No	105 (65.60)	38 (69.10)	34 (64.20)	33 (63.50)

Measures

Searching for Meaning and Finding Meaning Assessment

First, participants were asked to complete two items adapted from Updegraff et al. (2008) in order to assess their search for meaning and finding the presence of meaning as an outcome. These items were developed by Updegraff et al. (2008) to study specifically the temporal dynamics of finding meaning as an outcome and the underlying process of searching for meaning in a real-world, 9/11 post-terrorist context. Participants were asked to indicate the extent to which they had tried to search for meaning of the attack with the following item: "Over the past week, have you ever found yourself trying to make sense of the January, 7 2015 terrorist attack and its societal consequences?" and the extent to which they had found meaning as an outcome in the attack was assessed with the item: "Over the past week, have you been able to make sense of the January 7, 2015 terrorist attack and its societal consequences?". These responses were rated on a 5-point Likert scales with anchors ranging from 1 (*never*) to 5 (*very often*).

Rumours and Information From Official Sources Assessment

Following the items related to searching for meaning and finding meaning, respondents were asked to rate 10 statements: five rumours and five pieces of information from official French informational sources (see Appendix) regarding the January 7, 2015 terrorist attack. The statements were presented to participants in random order. The sampling procedure of the statements was based on the method of Allport and Lepkin (1945) that aimed to study the propagation of wartime rumours circulating within the population in a real-world threatening context. Thus, five rumours were selected from rumours circulating the most frequently in social media (e.g., Facebook, Twitter) and other Internet websites specialised in rumours inventory (e.g., Hoaxbuster) in the days following the terrorist attack. The five official information were selected from the most frequently reported information in French official media (e.g., Le Monde, FranceInfo, FranceInter), validated by Agence France-Presse (AFP; French official

agency charged to collect, verify and disseminate official news) in the days following the attack. Further, three items that were adapted from Allport and Lepkin (1945) assessed each statement. Participants were asked to rate their belief in the statement on a 4-point Likert scales with anchors ranging from 1 (*I don't believe in it at all*) to 4 (*I believe in it completely*). Participants were also requested to rate their willingness to transmit the statement to another person. These responses were rated on a 5-point Likert scale ranging from 1 (*not at all*) to 5 (*enormously*). Additionally, participants were asked to assess on a binary response scale whether they had already heard the statement (*yes/no*).

Sociodemographic Data

The final part of the questionnaire requested the sociodemographic characteristics of respondents, including their age, gender, postcode of residence, educational level, religious affiliation and presence in anti-terrorist demonstrations following the January 7, 2015 terrorist attack.

Power Analysis

The data of the current study including the coding system for reproducing the statistical analyses are provided on Open Science Framework <https://osf.io/dt3kn>. We conducted sensitivity analysis with the software *G*Power 3* (Faul, Erdfelder, Lang, & Buchner, 2007) to check whether our results were due to the lack of statistical power. A sensitivity power analysis with power ($1 - \beta$) set at 0.80 and $\alpha = 0.05$ (two-tailed) revealed that on the basis of difference between two independent means analyses, a sample size of 50 participants per group would be needed to detect effect size of 0.57. Moreover, ANOVA analyses of main effects and interactions require a total sample size of 100 participants to detect effect size of 0.42; linear multiple regression analyses require a total sample size of 100 participants to detect effect size of 0.08; and correlations analyses require a total sample size of 134 participants to detect effect size of 0.24. Thus, despite the modest sample size of the current study, the sensitivity power analysis confirmed mostly satisfactory levels of required effect sizes.

Results

Searching for Meaning and Finding Meaning

The mean values for searching for meaning and finding meaning items at one week (Time 1), one month (Time 2) and two months (Time 3) following the terrorist attack are represented in Figure 1. The overall mean values were as follows for participants' searching for meaning ($M = 3.48$, $SD = 1.27$), and finding meaning ($M = 3.24$, $SD = 1.28$). Additionally, one-way ANOVA analyses conducted with criteria for Time showed that participants' searching for meaning decreased across time, $F(2, 157) = 18.87$, $p < .001$, $\eta_p^2 = .194$. The specific *t*-test for independent sample showed a decrease in participants' searching for meaning following the attack from Time 1 ($M = 4.11$, $SD = 0.83$) to Time 2 ($M = 3.53$, $SD = 1.12$), $t(106) = 3.07$, $p = .003$, $d = 0.92$, and from Time 2 to Time 3 ($M = 2.75$, $SD = 1.43$), $t(103) = 3.11$, $p = .002$, $d = 0.61$. However, participants' finding meaning has not decreased over the period of two months following the attack, $F(2, 157) = .310$, $p = .734$, $\eta_p^2 = .004$.

Further statistical analyses showed that participants' age, gender, and religious affiliation were unrelated to their searching for meaning and finding meaning of the terrorist attack, $F_s < 1$. However, respondents who participated in anti-terrorist demonstrations in France were searching for meaning more ($M = 3.69$, $SD = 1.22$) than participants who did not participated in any demonstration ($M = 3.18$, $SD = 1.29$), $t(158) = 2.55$, $p = .012$, $d = 0.41$. Moreover,

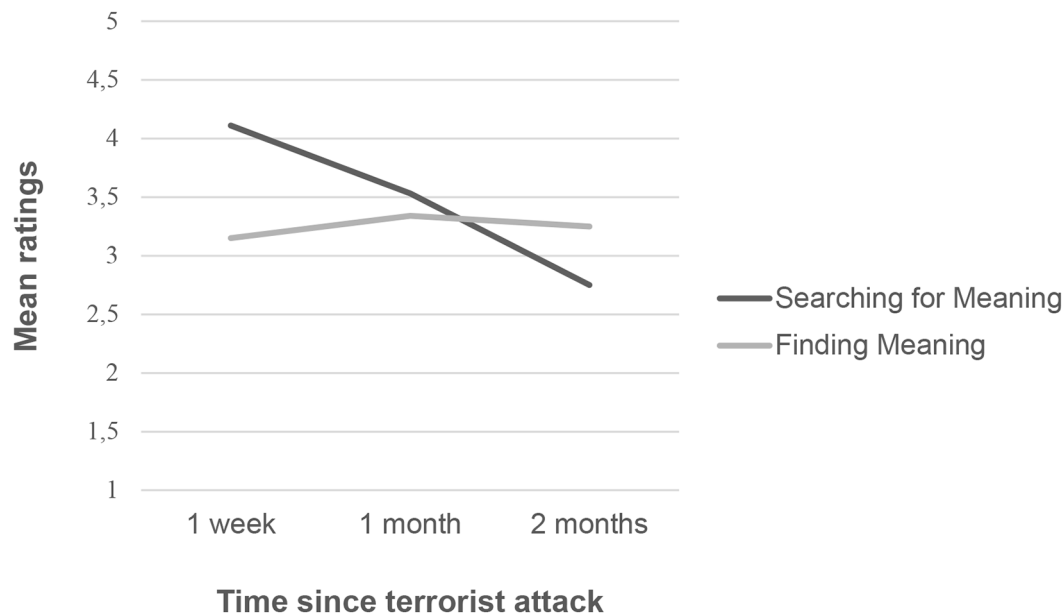


Figure 1. Mean levels of searching for meaning and finding meaning at three measurement times.

participants with higher educational attainment reported increased search for meaning following the terrorist attack. Specifically, participants with high school diploma ($M = 3.06$, $SD = 1.45$) were searching for meaning less than participants with undergraduate educational attainment ($M = 3.62$, $SD = 1.13$), $t(86) = -2.05$, $p = .044$, $d = 0.44$, and participants with graduate diploma ($M = 3.71$, $SD = 1.23$), $t(85) = -2.26$, $p = .026$, $d = 0.49$. The summary of linear regressions predicting participants' search for meaning are reported in Table 2. The data show the assumption of independent residuals with Durbin-Watson test = 1.95.

Table 2

Summary of Regressions Predicting Participants' Search for Meaning

Variables	<i>B</i>	β	<i>t</i>	95% CI
Constant	5.098**		6.504	3.548, 6.647
Age	.043	.016	.215	-.356, .443
Gender	-.215	-.085	-1.185	-.574, .144
Living Area	-.029	-.018	-.247	-.263, .205
Educational Attainment	.226*	.186	2.546	.050, .401
Religious Affiliation	-.033	-.012	-.170	-.413, .348
Participation in Demonstrations	-.396*	-.156	-2.087	-.771, -.021
Time	-.674**	-.449	-6.268	-.886, -.461

Note. CI = confidence interval.

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

Moreover, respondents living area was related to their finding meaning of the terrorist attack, $F(2, 148) = 3.75$, $p = .026$, $\eta_p^2 = .048$. Specifically, participants living in Paris reported being more able to find further meaning of the terrorist attack and its societal consequences ($M = 3.47$, $SD = 1.21$) than participants living in the other areas of France ($M = 2.71$, $SD = 1.46$), $t(101) = 2.65$, $p = .009$, $d = 0.53$. Moreover, multiple linear regression analysis

showed that the relationship between participants' finding meaning and Time was constant for all participants' sociodemographic characteristics, $R^2 = .284$, $F(7, 143) = 1.79$, $p = .093$, $f^2 = 0.397$ with exception for participants' living area ($B = -.383$, $p = .006$) which contributed significantly to the model. The data show the assumption of independent residuals with Durbin-Watson test = 1.80.

Rumours and Information From Official Sources

The overall mean values of the extent of participants' beliefs in five rumours and in five information provided by official sources, participants' willingness to transmit it and the percentage of participants who already heard the statements are reported in Table 3.

Table 3

Overall Means and Standard Deviations for Belief and Willingness to Transmit Rumours and Official Information and Percentage of Participants Who Heard It Before

5 Rumors and 5 Official Information	n	Tending to Believe it		Willingness to Transmit it		Heard it Before %
		M	SD	M	SD	
Rumor 1: The terrorist attack against the <i>Charlie Hebdo</i> journal office was a manipulation...	137	1.42	0.83	1.72	1.17	60.1
Rumor 2: There will soon be another terrorist attack in France...	140	1.66	0.95	1.74	1.16	20.8
Rumor 3: The <i>Charlie Hebdo</i> terrorist attack was an Israeli conspiracy...	138	1.59	0.97	1.70	1.13	22.4
Rumor 4: In reality, the 'terrorists' were policemen from the anti-terrorist brigade...	140	1.52	0.96	1.68	1.12	20.1
Rumor 5: Michel Houellebecq is a visionary writer...	139	1.97	1.12	1.81	1.15	32.9
Info 1: Like the forgotten passport following the September 11, 2001...	138	2.62	1.19	2.62	1.33	84.6
Info 2: The police was unreachable during the massacre....	138	2.05	1.03	2.09	1.27	20.4
Info 3: A video recording is available on the Internet that depicts...	137	3.19	1.10	2.07	1.31	76.2
Info 4: Less than one hour after the attack (56 minutes exactly), French President...	138	2.56	1.24	2.00	1.25	47.2
Info 5: Journalists from the neighbouring agency, <i>Premières Lignes</i> ...	141	1.70	1.08	1.77	1.17	27.1

Also, it is important to report that more than 20 participants have left blank cases in the questionnaires for rumours and official information beliefs and their willingness to transmit it. One-way ANOVA with criteria for Time showed that the participants believe in rumours and in information from official sources and their willingness to transmit it was stable over the period of two months following the terrorist attack, $F_s < 1$. However, participants tended to believe more in information provided by official sources ($M = 2.42$, $SD = 0.62$), than in rumours ($M = 1.62$, $SD = 0.66$), $t(268) = -10.35$, $p < .001$, $d = 1.26$. Also, participants were more willing to transmit information provided by official sources to others ($M = 2.10$, $SD = 0.89$), compared to rumours ($M = 1.73$, $SD = 0.83$), $t(261) = -3.48$, $p < .001$, $d = 0.43$.

In order to conduct complementary statistical analyses, the five rumours items and the five official information items were collapsed into an Index of Rumours Belief and Index of Rumours Transmission, Index of Official Information Belief and Index of Official Information Transmission. One-way ANOVA with criteria for Time showed that the Indexes of participants' believe in rumours and in information from official sources and their willingness to transmit it were stable over the period of two months following the terrorist attack, $F_s < 1$. Specific statistical analyses showed that participants' educational attainment, religious affiliation, living area and participation in anti-terrorist manifestations were unrelated to their belief in rumours and in information provided by official sources and to their transmission, $F_s < 1$. However, participants' gender was related to their believe in information provided

by official sources, $F(1, 132) = 4.98, p = .027, \eta_p^2 = .036$. The specific t -test for independent sample showed that men tend to believe more in information provided by official sources ($M = 2.57, SD = .59$) than women ($M = 2.33, SD = .62$), $t(132) = -2.23, p = .027, d = 0.39$.

Additionally, participants' age was related to their belief in rumours, $F(2, 132) = 3.61, p = .030, \eta_p^2 = .052$. In order to conduct complementary statistical analyses, bivariate correlation between participants belief in rumors and their age was conducted, $r(135) = -.280, p < .001$. Such results indicate that participants' believe in rumours tends to decrease with age. Moreover, a simple linear regression analysis showed that participants' belief in rumours predicted their willingness to transmit rumours, $R^2 = .525, F(1, 129) = 142.80, p < .001, \eta_p^2 = .590$. Similarly, a simple linear regression analysis showed that participants' belief in information provided by official sources predicted their willingness to transmit the official information, $R^2 = .209, F(1, 129) = 34.07, p < .001, \eta_p^2 = .338$. The details of intercorrelations between study variables are reported in Table 4. Furthermore, a two-way ANOVA was conducted in order to examine the effect of time and search for meaning on participants' belief in rumours. There was a non-significant interaction between the effects of time and search for meaning on participants' belief in rumours, $F(7, 121) = .353, p = .927, \eta_p^2 = .020$. Specifically, there was no statistically significant difference in participants' belief in rumours at three points in time ($p = .247$) and according to participants' search for meaning ($p = .872$).

Table 4

Overall Bivariate Correlations of Study Variables

Variable	1	2	3	4	5	6
1. Searching for Meaning	–	.20*	-.01	-.06	.03	.04
2. Finding Meaning	.20*	–	-.01	.09	-.07	-.15
3. Index of Rumours Belief	-.01	-.01	–	.33**	.73**	.55**
4. Index of Official Information Belief	-.06	.09	.33**	–	.23**	.46**
5. Index of Rumours Transmission	.03	-.07	.73**	.23**	–	.72**
6. Index of Official Information Transmission	.04	-.15	.55**	.46**	.72**	–

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

Discussion

The general purpose of the current study conducted following the January 7, 2015 terrorist attack in Paris was to seize the temporal perspective that enhance understandings of laypeople's symbolic responses to terrorism. This quasi-longitudinal study specifically extends the social stage model of collective coping with disasters (Pennebaker & Harber, 1993) to the meaning-making and rumour-mongering processes within a real-world, post-terrorist context. The main findings evidence a similar temporal pattern in the results for civilians' searching for meaning following the terrorist attack that shows a progressive decrease over the two-month period. Such findings indicate that the social stage model of collective coping with disasters, which was initially designed to formalise the temporal dynamics of social sharing processes in the context of collective disasters (Pennebaker & Harber, 1993) and later applied to post-terrorist contexts (Pelletier & Drozda-Senkowska, 2016; Rimé et al., 2010), might provide an ade-

quate theoretical framework to clarify the temporal dynamics of the searching for meaning process within the context of societal trauma.

However, the pattern in the attempts of participants to find meaning as an outcome did not change over the two-month period following the terrorist attack. Such results are consistent with previous research conducted in the 9/11 post-terrorist context, which has reported that 58.7% of civilians were not able to find meaning within two months after the terrorist attack (Updegraff et al., 2008). Furthermore, in line with the social stage model of collective coping with disasters (Pennebaker & Harber, 1993), the pattern of laypeople's thoughts regarding the collective trauma diminished more slowly over time compared to the interpersonal social sharing processes. Additionally, previous research has demonstrated that time generally facilitates the finding of meaning following traumatic events rather over a period of multiple years (Murphy et al., 2003). In view of these findings, future research should investigate more thoroughly and longitudinally the gap in the scientific literature on the precise temporal dynamics of specific meaning-making components in the context of a real-world societal threat. Such future investigation should be conducted over a far longer time span than two-month period.

Additionally, alternative explanations of the pattern of results showing that French laypeople's attempt to find meaning as an outcome did not change over the two-month period following the terrorist attack suggest that people could compensate the loss of meaning following the attack in another domains. Specifically, the Meaning Maintenance Model (Heine et al., 2006) posits that people tend to compensate the loss of meaning across different domains by the mechanism of fluid compensation. These different domains relate to basic human needs such as need for self-esteem, certainty, belongingness, and the need for symbolic immortality. Indeed, previous research conducted in post-terrorist contexts showed that laypeople experience greater concern for others, the loved ones especially (Bux & Coyne, 2009), and they also tend to spend more time with their family and friends following the terrorist attack (Goodwin, Willson, & Gaines, 2005; Huddy, Feldman, Capelos, & Provost, 2002; Pelletier & Drozda-Senkowska, 2016). Thus, the human beings' core affiliative tendencies and need for meaningful social bonds (Baumeister & Leary, 1995) could constitute one of the compensatory domains related to the threat of meaning in post-terrorist contexts.

Moreover, France is a country with strong culture of participating in various demonstrations. The Charlie Hebdo terrorist attack was directed against journalists and cartoonists of the satirical journal that published controversial cartoons of the prophet Muhammad. Thus, the terrorist attack had a strong symbolic value because the terrorists targeted French symbolic values, particularly the freedom of expression, that are rooted in the Declaration of the Rights of Man and of the Citizen, established in 1789 (*Déclaration des Droits de l'Homme et du Citoyen, 1789*). The anti-terrorist demonstrations where French laypeople expressed their profound attachment to republican fraternity and freedom of expression following the January 7, 2015 terrorist attack were the biggest demonstrations that took place in France since World War II (Mayer & Tiberj, 2016). Moreover, the results of the present study showed that laypeople who participated in anti-terrorist demonstrations reported increased search for meaning, compared to participants who did not participate in any anti-terrorist demonstration. In line with the Terror Management Theory, people tend to reaffirm their pre-existing beliefs and cultural worldviews in post-terrorist contexts primarily due to the mortality salience and the related increase in existential anxiety (Pyszczynski et al., 2003, 2015). Thus, the incomparable presence of French civilians in anti-terrorist demonstrations where they reaffirmed publicly their pre-existing belief systems and cultural worldviews, namely their attachment to the French fundamental democratic values, could also constitute one of the possible compensatory mechanisms to the loss of meaning in the context of a real-world threat, such as terrorism. Moreover, previous research showed that

heightened mortality salience tends to increase the worldview defense especially for individuals with higher level of self-esteem (Juhl & Routledge, 2014). Consequently, future research might investigate more thoroughly the specific relationship between laypeople's individual characteristics and the worldview defense in the context of a real-world terrorist threat. Although, a baseline measure of meaning-making in the French context, which is actually unavailable, would be a relevant viewpoint to study the specificity of meaning-making processes in the context of real-world threats, such as terrorism.

Furthermore, traumatic and conflict situations in particular may also constitute a source of meaning. Specifically, Rovenpor et al. (2019) showed that real-world ongoing large-scale conflicts, such as terrorist attacks, allow people to derive more meaning in their lives. However, such meaning derived from ongoing conflict situation lead to a greater endorsement of pre-existing ideologies that might contribute to perpetuate the intergroup conflict. Moreover, there is no universal form of meaning common to all human beings. Some scholars argued that meaning is influenced also by cultural context (Tweed & Conway, 2006) and interpersonal processes such as social validation (Lepore et al., 1996). Thus, the individuals' personal and social resources influence the meaning-making processes (Park, 2010; Updegraff et al., 2008). Consequently, future research that focus on individuals' meaning-making processes in post-terrorist contexts could be completed by in-depth interviews and qualitative data in order to refine the comprehension of the complex underlying mechanisms that allow people reconstruct their shattered sense of the surrounding world. The complementary qualitative data could permit to counter one of the main limitations of the current study that was based exclusively on self-reported measures. Also, single items scales present a limitation related primarily to their content validity and reliability (Aiken, 1980). Thus, future research based on methodological triangulation might contribute to increase the ecological validity of applied research conducted in post-terrorist contexts, and the comprehension of psychosocial processes that occur in complex societal contexts (Caillaud, Doumergue, Préau, Haas, & Kalampalikis, 2019; Flick, 1992).

Additionally, future research conducted in post-terrorist contexts could be based on adapted versions of more complete measures of meaning such as the Multidimensional Existential Meaning Scale that offers an interesting assessment perspective of three specific components of meaning which might be threatened in the context of terrorism, specifically to what extent people perceive the sense of coherence in life, to what extent their lives are driven by meaningful goals and aims and the inherent perceived value of their life (George & Park, 2017). Further, the Meaning in Life Questionnaire (Steger et al., 2006) remains a relevant measurement tool because it allows to evaluate the specific components of meaning-making, namely presence of meaning as an outcome and the underlying coping process of search for meaning. Specifically, the presence of meaning as an outcome was positively associated with individuals' overall well-being (Park, Park, & Peterson, 2010; Steger & Kashdan, 2007) and the presence of meaning facilitates individuals' adjustment to traumatic events (Park & Folkman, 1997). However, the coping process of searching for meaning can be counterproductive for some individuals, because the increased search for meaning has been associated with positive outcomes specifically for those who reported the presence of meaning (Cohen & Cairns, 2012; Park et al., 2010). Further, the persisting search for meaning has been associated with individuals' poorer adjustment following collective trauma such as terrorism (Updegraff et al., 2008). Thus, additional measures of individuals' well-being, post-traumatic-growth and distress such as Depression-Happiness Scale (McGreal & Joseph, 1993), the Hospital Anxiety and Depression Scale (Zigmond & Snaith, 1983) or the Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996) could improve the understandings of articulation between meaning-making components and individuals' adjustment to collective upheavals such as terrorism.

Furthermore, the results of the current study suggest that participants' belief in rumours and official information and their willingness to transmit it did not change over the two-month post-attack period. One of the possible explanations is that the normativity of the societal context where the post-terrorist demonstrations were consensually celebrated by mass media and politicians could influence the participants' responses biased by social desirability in self-reported measures (see Mayer & Tiberj, 2016). Thus, the social norm to "be Charlie" following the Charlie Hebdo terrorist attack could conduct participants to report that they believe more in information provided by official sources and their willingness to transmit the official information, compared to unverified information such as rumours.

Although, these results could also highlight an additional limitation of the current study related to the choice of specific rumours and information from official sources. Consistent with the procedure of Allport and Lepkin (1945) that was employed to study wartime rumours circulating within the population, rumours and official information were selected from those which the French traditional and social media frequently reported in the days following the terrorist attack. However, despite the methodological complexity of conducting studies in post-terrorist contexts, future studies might be based on a larger sample of pre-tested rumours and information provided by official sources.

Moreover, as mentioned above, the social stage model of collective coping with disasters (Pennebaker & Harber, 1993) empirically demonstrates the temporal dynamics of social sharing processes over a period of two months after collective disasters. Previous research has indicated that after an inciting event, such as collective traumatic experiences, people exhibit a spontaneous propensity to share their emotional experiences and insights with others (for reviews, see Rimé, 2005, 2009). However, to the authors' best knowledge, the precise temporal dynamics of rumour-mongering remains unexplored within the scientific literature. A study conducted by Bordia and Rosnow (1998) has provided an exception, but their attempt to formalise the temporal dynamics of rumour transmission has been done solely within a 6-day period. Rumours are an ubiquitous feature of our social life which proliferates within the contexts of crisis and threat (DiFonzo & Bordia, 1997, 2007a; Rouquette, 1975) and contributes irrevocably to the construction of social reality. In view of this argument, the temporal dynamics of rumour-mongering processes would merit further future investigation by psychosocial research.

Additionally, this study has aimed to explore the existence of a relationship between meaning-making and rumour-mongering processes in a real-world context. The "effort after meaning" (Bartlett, 1932) is the specific cognitive core process of active reconstruction in the context of ambiguity that underpins rumour-mongering. Moreover, according to some scholars, rumours might enable people to make sense of the surrounding world at the individual and collective levels (e.g., Bordia & DiFonzo, 2004; Rouquette, 2006; Shibutani, 1966). However, the current study does not provide empirical evidence of a direct relationship between meaning-making and rumour-mongering processes in a real-world context. Such results suggest that rumour-mongering did not allow French laypeople to construct more meaning of the terrorist attack. Language might be viewed as a skeleton that constrains the comprehension of people's experiences and the expression of meaning. However, language could also be apprehended as a kind of social strategy that allows people to persuade others, gain others attention and to enhance social relationships (Guerin, 2003). According to some scholars, rumours are utilized to enhance social conversation and good social relationships rather than as a purpose for meaning or a construction of meaningful interpretation of complicated situations. Thus, the Bartlett's (1932) "effort after meaning" should be viewed rather as an "effort after good social relationships" (Guerin & Miyazaki, 2006, p. 30). This alternative interpretation highlights a promising pathway for future research, such as the investigation of conversion mechanisms that allow to shift individuals' cognitive processing of rumours into interpersonal relationships enhancer.

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Competing Interests

The authors have declared that no competing interests exist.

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Data Availability

For this study, a dataset is freely available (see the [Supplementary Materials](#) section).

Supplementary Materials

The data of the current study including the coding system for reproducing the statistical analyses are provided on Open Science Framework: <https://osf.io/dt3kn>

Index of Supplementary Materials

Pelletier, P., & Drozda-Senkowska, E. (2019). *Meaning-making in the shadow of terrorism* [Data and codebook]. OSF. <https://osf.io/dt3kn>

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Appendix

Five Rumours Used in the Present Study

1. The terrorist attack against the *Charlie Hebdo* journal office was a manipulation, as the colour of the rear-view mirrors of the assassin's car changed suddenly. While they were white when the car was in front of the *Charlie Hebdo* office, they are black in pictures of the abandoned car.
2. There will soon be another terrorist attack in France, as the *Charlie Hebdo* attack involved five rather than two shooters. Mr Goldenberg, a neighbour of the *Charlie Hebdo* office, stated, "I heard the shot. I saw hooded guys who drove away. There were at least five".
3. The *Charlie Hebdo* terrorist attack was an Israeli conspiracy because Israeli mass media, the JJS News, published two exclusive reports about it. The first concerned the identity of the terrorists, and the second regarded the terrorists' car, which was found in front of a kosher restaurant in Paris.

4. In reality, the “terrorists” were policemen from the anti-terrorist brigade. A merchant from Dammartin testified to France Info that ‘they were dressed in black and armed as policemen in intervention, with bulletproof vests and Kalashnikov rifles. One of them said, “I’m a policeman. Leave from here. We don’t kill civilians”.
5. Michel Houellebecq is a visionary writer given that his last novel, *Soumission* contains the following phrase: “We could think about the day when few young people will want to avenge the prophet by killing in cold blood the public blasphemers, fifteen journalists and cartoonists”.

Five Pieces of Official Information Used in the Present Study

1. Like the forgotten passport following the September 11, 2001 terrorist attacks in the USA, an identity card of one of the two assassins of the *Charlie Hebdo* terrorist attack was forgotten in his personal car.
2. The police were unreachable during the massacre. One journalist, who requested anonymity, testified, “we were barricaded, and we tried to call the police, but they were unreachable”.
3. A video recording is available on the Internet that depicts a Muslim policeman, Ahmed Merabet, on the ground after being shot by a bullet by one of the assassins.
4. Less than one hour after the attack (56 minutes exactly), French President François Hollande, surrenders arrived without any apparent fear of the site of the tragedy. He strangely seemed unafraid of stray bullets or hidden bombs in the perimeter.
5. Journalists from the neighbouring agency, *Premières Lignes*, seemed to have been informed beforehand of the terrorist attack, as they were already wearing bulletproof vests within a few minutes of the first report of the *Charlie Hebdo* attack.