

# **The Dark Side of Tourism's Implications on the 2016 Italian Earthquake: Results From a Structural Equation Modeling Study**

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*Even though growing academic attention on dark tourism is a fairly recent phenomenon, among the various reasons for travelling, death-related ones are very ancient; the darker side of human nature has always been fascinated and curious about death. This study proposes to describe the phenomenon of dark tourism related to the 2016 earthquake in Central Italy. The primary objective is to examine the motivation-experience relationship in a dark tourism site, using the structural equation model, applied for the first time to a dark tourism research in 2016, in a study carried out after the Beichuan earthquake (BER). The findings are derived from primary data compiled from 361 tourists by conducting a Likert scale survey. It was used the structural equation model to examine the motivation behind dark travel and how this experience can influence the motivation and emotional reaction of tourists. Findings are partially in line with the previous study mentioned above, indicating that differences in the socio-cultural context play a role.*

*Keywords: dark tourism, emotional reaction, experience, motivation, structural equation model*

## **INTRODUCTION**

The growing number of studies on dark tourism denote it as a fairly recent phenomenon in the academic field (Light, 2017), but travelling to sites of death, disaster, suffering and tragedy, goes back to the time of the Roman Empire (Ghetau & Esnau, 2010) when people were present at the death of gladiators in the Coliseum. Since that time a large number of antecedents can be identified in battlefields or sites associated with wars, for example during the Middle Ages torture and decapitations attracted crowds who watched the executions, and these phenomena, although they have not disappeared, have been diluted over time and dark tourism has taken a different form (Seaton, 1996). During the early 1990s this particular form of tourism was seen as a branch of cultural tourism (Foley & Lennon, 1996) and has been labeled with different names, such as black spot tourism (Rojeck, 1993), thanatourism (Seaton, 1996) and morbid tourism (Blom, 2010).

The term dark tourism was presented to the academic world at the same time, and in the same Journal, as the term thanatourism, when in 1996 Foley & Lennon, and Seaton, published two different papers on the Journal of Heritage Studies. Since then, different publications regarding these subjects have appeared, but the terms dark tourism and thanatourism have not obtained a universally accepted definition, instead there is ample literature combining tourism and death. Many studies deal with tourism at places of death or suffering, without referring to the two main definitions, but at the same time using them as a framework.

Moreover mapping the type of sites that are the focus of dark tourism and thanatourism research (Light, 2017) it appears that the most common ones are sites associated with war, including war cemeteries, sites associated with the Holocaust, prisons and contemporary conflict zones; sites of natural disasters have not yet received great attention. Among the studies concerning sites of natural disasters that have engaged dark tourism or thanatourism as explanatory framework, from 1996 to 2019, only one concerns the European scenario, and refers to the earthquake of L'Aquila (Wright & Sarpley, 2016). The 2016 Central Italy earthquake, although it attracted massive media attention has not been investigated in vivo.

The primary objective is to examine the relationship among Dark Tourism Motivation (DTM), Dark Tourism Experience (DTE) and tourists' Emotional Reaction (ER), related to the phenomenon of the 2016 Central Italy Earthquake. First, this paper focuses on the definition of dark tourism, underlining the differences between dark tourism and thanatourism, in order to offer a framework for understanding the relationship between Dark Tourism Motivation (DTM), Dark Tourism Experience (DTE) and tourists' Emotional Reaction (ER). Second, it describes the affected area in Central Italy, the data collection process and the data analysis techniques. Third it presents the results of the Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). Observed variables are estimated via Structural Equation Modeling (SEM). Fourth it seeks to interpret the findings and finally includes the discussion section which explores the meaning of the results with reference to previous research studies. In particular the results are compared with what emerged from the case study of the Beichuan earthquake (Yan et al, 2016), and contain the conclusions and implication of the current study and further research suggestions.

## **Conceptual Background**

### *Dark Tourism, Thanatourism and Beyond*

More than two decades have passed since the concepts of dark tourism and thanatourism were patented respectively by Foley & Lennon and Seaton. In these years, the two terms have been used interchangeably despite the fact that the aforementioned Authors had given different definitions. Dark tourism seems to be a more generic concept (Sharpley,2009), which somehow relates tourism with atrocity, death, suffering and tragedy; instead thanatourism, is a more specific concept as the tourist is entirely or partly motivated by the desire to get in touch with the sense of death (Seaton, 1999).

To misquote the very early definitions, while Foley & Lennon approach the subject from the supply dimension and the way how places of death are presented and interpreted to their visitors; Seaton approaches the behavioral dimension and the pool of motives which drive visitors to places of death. Nevertheless, most of the studies in this field can be found in the second half of the life of this field itself, and the majority of them adopt the concept of dark tourism; few differences between the two definitions help to illustrate the following paths. While Seaton specified the existence of various forms of motivations, Lennon & Foley (2000) did not identify differentiations, so that, researchers investigated the categorizations, and subsequently the relationship, of type of sites and tourists' experiences (Dann,1998; Slade,2003; Beech, 2000; Robbie, 2008; Strange & Kempa, 2003).

Indeed, researchers, focusing their studies on the types of sites, have made a differentiation among: sites associated with war and conflicts (e.g. Slade, 2003; Knox, 2006; Baldwin & Sharpley, 2009; Chronis, 2012; Zheng et al.,2017); sites associated with holocaust (e.g. Beech,2000; Cohen,2011, Nawijn et al. 2016), genocide sites (Simic,2009;Sion,2014), dangerous places (e.g. Warner 1999; Buda,2015), burial sites (e.g. Leevit,2012; Brown, 2016), sites of natural disasters (Smith & Croy,2005; Robbie,2008; Yan et al, 2016) and other types of sites which have received minor attention. However, these terminologies have not been accepted by the tourism industry (Wight,2009; Baldwin & Sharpley ,2009; Magee & Gilmore 2015).

### *Understanding Disaster Tourists*

Alongside the well-established typologies of tourism based on a particular type of place, there is not an equally widespread literature about the motives for visiting places associated with death and disasters. The leading motives (Ashworth, 1996, 2002, 2004) were: curiosity about the unusual, an attraction to horror and a desire for empathy or identification with the victims. After the early 2000s this subject was examined from multiple perspectives, but in most cases these studies are descriptive or conceptual, rarely empirical. In the last published literature review (Light, 2017) on dark tourism and thanatourism, 19 principal motives for visiting places of death were listed. This study considers only the motives previously associated with natural disaster tourism: the desire or opportunity for education or understanding reasons (Motivation of Education – ME), general or leisure related motives (Motivation of Leisure – ML), and curiosity (Motivation of Curiosity – MC).

The most reported motive not only related to natural disaster tourist sites, but overall to the various identified typologies of sites, is to fulfill an educational or understanding function (Kang et al., 2012). This also applies to heritage and cultural tourism (Biran et al., 2011; Biran & Poria, 2012). Some studies involve general or leisure related motives (Lennon & Foley, 2000), because, clearly, not all the visitors of disaster tourism sites are dark tourists, as the disaster site could be only one of the tourist activities, moreover it is often dark tourists who do not self-identify them as such (Butler & Suntikul, 2013). Many people visit natural disaster sites moved by curiosity (Ashworth & Hartmann, 2005). In this regard, Rittichainuwat (2008: p.430) states that “thanatourists were not motivated by death but were curious to see the magnitude of a natural disaster”.

Almost in the same years, another theme emerges, which focuses on the tourists’ experience. Early studies acknowledge the co-existence of a plurality of experience tourists can engage with. Assuming that dark tourists’ experiences depend on individual motivations (Du et al., 2013; Hughes, 2008; MacCarthy, 2016; Podoshen, 2013; Tinson et al., 2015), the cultural, national background (Kamber et al., 2016; Zhang et al. 2016) and personal connection to the site (Cohen, 2011), among the various explored experiences, emotional (Buda, 2015; Nawijn et al., 2015; Picard & Robinson, 2012; Tucker, 2009) and cognitive experiences (Austin, 2002; Hughes, 2008; Kang et al. 2012; Muzaini et al., 2007; Yan et al., 2016) have received most attention. Cognitive experience means to integrate, according to recent studies (Coen, 2011, Yan et al., 2016), experience of Education (EE) and Experience of Knowledge (EK). To be specific, EE is related to learning and EK is about understanding the site and the event that took place in the site.

Additionally, different researches show that the emotional experiences integrate Moral Experience (EM) and Personal Experience (EP). Visiting dark tourism sites can be an opportunity for the visitors to reflect on their own morality and behavior (Hughes, 2008; Jhonston, 2016; Stone, 2009; Yan, 2016) and an opportunity to engage with mortality (Stone 2009; Goatcher & Brunsden, 2011; Yan, 2016). Furthermore, in the recent years growing attention has been given to dark tourists’ emotions (Biran & Buda, 2018; Buda 2015; Nawijn & Biran, 2018; Waterton & Watson, 2014) and their reactions. There is implicit acceptance that natural disaster sites provoke complex reactions in people visiting them (Cooke, 2012, p.55) especially since the visit can be undertaken for reasons that are not necessarily related to dark motivations (Martini & Buda, 2018). Additionally, the Emotional Reactions (ER) can be positive or negative (Nawijn et al., 2016), for example some sites can stimulate national pride (Cheal & Griffin, 2013), a sense of hope (Koleth, 2014), and a sense of the Sublime (Martini & Buda, 2018).

## **RESEARCH METHODS**

### **Natural Disaster Site**

The Central Italy Earthquake (CIE) of 2016 was a seismic sequence characterized by a series of earthquakes localized in the same area, in a certain interval of time, of a similar and not very high magnitude, indeed it was named by the National Institute of Geophysics and Volcanology as: the “Amatrice-Norcia-Visso Seismic Sequence”. It regards three disruptive events that began on August 2016, and affected Lazio, Marche and Umbria Regions. The sequence started on 24 August with a Mw 6.1 event, striking a sector of the Apennines. Two aftershocks took place on October 26, 2016 with epicenters among Visso,

Ussita and Castelsantangelo sul Nera (the first quake of magnitude 5.4 and the second of magnitude 5.9). On October 30, 2016, the strongest magnitude of 6.5 was recorded with its epicenter between Norcia and Preci.

This set of events was deadly for 303 people, highly destructive for the cultural heritage and caused an economic loss of more than 24 billion euro. Data from the Italian Civil Protection, show that, after three years from the earthquake there are more than 49.000 condemned buildings, more than 30.000 displaced persons, even though more than 1900 emergency housing solutions were assigned. Moreover 267 productive activities were delocalized. Moreover, regarding tourism, a recent report, drafted by one of the Universities of the affected area, shows that this area, from the years 2009-2010 has begun to perceive in a more conscious way the potential of its tourist vocation, registering a progressive increase of the receptive capacity up to 2016, when the accommodation facilities were destroyed or closed due to being unfit for use. Moreover, the same report shows in the following year a decrease of tourism flow (-29% compared to the average of the previous period), and after three years, regional data confirmed the negative trend.

**Data Collection**

Data was collected via an on-site administration of semi-structured surveys based on a five-point Likert scale (where 1 indicates fully disagree, and 5 fully agree). Although 361 questionnaires were administered, 103 were incomplete, thus forcing us to discard them. Eventually, the sample consisted of 258 fully usable questionnaires. The effective questionnaire rate was then 71%. Random sampling was conducted in several periods in July 2019. First, we interviewed the participants in Castelluccio di Norcia (PG) and Norcia (PG) in two consecutive days. The second period took place a week later in Amatrice (RI) and the last one, within a month from the first one, in Ussita and Visso (MC).

The survey followed the scheme of Yan et al. (2016), which was already an adaptation from the existing literature (Stone, 2010, 2012; Stone & Sharpley, 2008; Kang et al., 2012), and was effectively translated into native language by a proofreader. It consisted of three main sections: a first eight-question set about the motivations of their visit to a disaster-tourism site (namely, MOTs), a second twelve-set of questions about their on-site experience (namely, EXPs and ERs) and a last set of qualitative questions with the aim of eliciting socio-demographic variables of the participants. The first set could be split into 3 sub-sets: motivation of emotion (ME), motivation of leisure (ML) and motivation of curiosity (MC). The second one is composed of two macro groups: experience and emotional reaction. These could themselves be split into five sub-sets: moral experience (EM), educational experience (EE), experience of knowledge (EK), personal experience (EP) for the former and emotional reaction (ER) for the latter.

The sample was composed of 258 participants, of which (See Table 1) the majority was female (55%), 78% of tourists was between 25 and 64 years old, and barely one third had a university degree. Comparing our sample to the one of Yan et al. (2016), even though we also conducted the experiment during the summer holidays, only one sixth of the participants were students. Finally, the overwhelming majority of them came from different regions other than the ones close to the epicenter.

**TABLE 1  
DESCRIPTIVE STATISTICS OF THE SAMPLE**

Descriptive statistics of the sample (N=258).		
Variables	Frequency	%
Gender		
Females	142	55.04%
Males	116	44.96%

Age		
14-	10	3.88%
15-24	26	10.08%
25-44	96	37.21%
45-64	106	41.09%
65+	20	7.75%
Education		
Primary school	4	1.55%
Middle school	50	19.38%
High school	47	18.22%
Technical college	76	29.46%
Graduate	81	31.40%
Profession		
Government staff	29	11.24%
Staff	53	20.54%
Freelance professional	46	17.83%
Technicians/laborer	24	9.30%
Farmers	3	1.16%
Soldiers	1	0.39%
Housewife	8	3.10%
Students	43	16.67%
Retired	34	13.18%
Unemployed	5	1.94%
Others	12	4.65%
From		
Epicentre	3	1.16%
Others	255	98.84%

### Data Analysis

The intuition of this work was to apply the Structural Equation Model (SEM) pioneered by Yan et al. (2016) in the Beichuan earthquake relics to the 2016 central-Italy earthquake. It is a powerful technique useful for combining qualitative analysis with the quantitative one. It allows the testing and estimation of causal relationships between latent variables, namely constructs and observed ones by means of multivariate regressions (Hox and Bechger, 2001; Klem, 2000).

The SEM analysis followed the classic two-step procedure (Anderson and Gerbing, 1988), namely a preliminary Exploratory Factor Analysis (EFA) was adopted together with a Confirmation Factor Analysis (CFA). The rationale is twofold. Firstly, only two cases could be found in the literature of a SEM approach applied to Dark Tourism in an earthquake site. The pioneer is indeed the model of Yan et al. (2016); the second case is that of Qian et al. (2017), which actually follows the previous one. As a matter of fact, they were both applied in a different social and cultural context such as the Asiatic one, namely the Beichuan region of Popular Republic of China. Secondly, due to translation issues of the survey form, the SEM model was unprecedented and required an EFA approach. Subsequently, the measurement model obtained was tested via CFA, before finally analyzing the structural relationships among the latent variables. The ultimate goal, as already stated, is to uncover the antecedents for the Disaster Tourism Experience (DTE) from the Disaster Tourism Motivations (DTM) and the Emotional Reactions (ER). In a nutshell, the

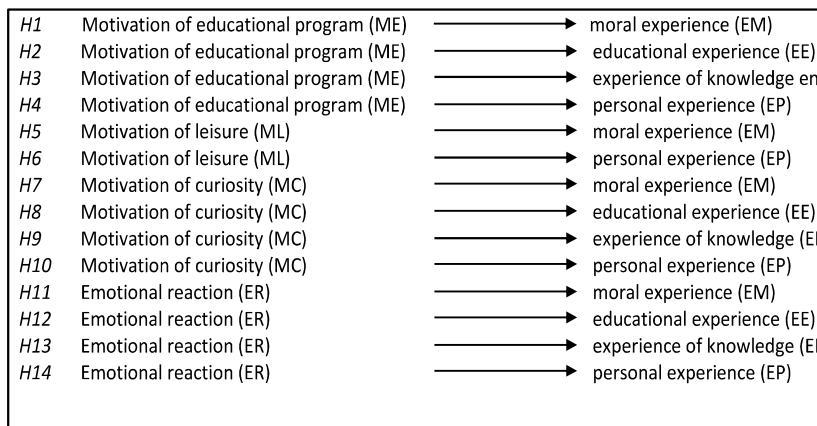
assumption is that the ultimate experience could be influenced ex-ante by the motivations lying behind the choice of a visit to a thanatourism site and correspondingly by the emotional reaction perceived onsite.

It has to be pointed out that the sample size (N) fulfills the most widely accepted rules of thumb concerning the minimum number needed in order to run a SEM. In fact: (i) N is greater than 150, which is considered the minimum number required (Tinsley and Tinsley, 1987; Anderson and Gerbing, 1988; Muthén and Muthén, 2002); (ii) N is at least five to ten times the number of parameters estimated (Klem, 2000); (iii) N has at least 10 observations per variable (Nunnally, 1967). STATA/SE 15.1 was the software used for the analysis.

### Research Hypotheses

This study builds upon previous contributions in disaster tourism (Pezzullo 2009; Rittichainuwat, 2008; Yan et al., 2016), so we assume that disaster tourists' experiences are related to tourist motivations (Ha) and that ERs are positively related to dark tourists' experiences (Hb). Moreover, these hypotheses are not inconsistent with previous researches on dark tourism (e.g. Lennon & Foley, 2000; Stone, 2011; Wight, 2006).

**FIGURE 1  
RESEARCH HYPOTHESIS**



## RESULTS

### Reliability and Exploratory Factor Analysis

Primarily, we tested the data for internal validity and reliability of the sample. After having tested the correlation matrix between all the factors for internal validity, we rejected the null hypothesis that the variables are incorrelated and thus the data does not fit for an EFA. Each latent variable, namely the construct groups, was then tested for internal validity through the Cronbach's alpha test (Cortina, 1993). We have adopted a threshold of 0.6 for all of the constructs to ensure their reliability and consistency (Nunnally, 1967).

Then, an EFA approach was adopted. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy (Kaiser, 1974) together with the Bartlett test of sphericity (Snedecor et al., 1989) were applied to the factors and addressed their reliability (See tables 2 and 3). The measurement model fitted a CFA and SEM analysis.

**TABLE 2**  
**DESCRIPTIVE STATISTICS OF THE FACTORS (DTM)**

Disaster Tourism Motivation					
Variable	Obs	Mean	SD	Min	Max
ME (Motivation of education)		3.97			
MOT1	258	3.73	1.39	1	5
MOT2	258	4.26	0.99	1	5
MOT3	258	3.91	1.10	1	5
ML (Motivation of Leisure)		3.26			
MOT4	258	2.84	1.35	1	5
MOT5	258	3.95	1.27	1	5
MOT6	258	3	1.42	1	5
MC (Motivation of Curiosity)		2.92			
MOT7	258	2.84	1.40	1	5
MOT8	258	2.99	1.44	1	5

**TABLE 3**  
**DESCRIPTIVE STATISTICS OF THE FACTORS (DTE)**

Disaster Tourism Experience					
Variable	Obs	Mean	SD	Min	Max
EM (Moral Experience)		4.29			
EXP1	258	4.21	1.09	1	5
EXP2	258	4.36	0.99	1	5
EXP3	258	4.31	1.02	1	5
EE (Educational experience)		4.66			
EXP4	258	4.60	0.74	1	5
EXP5	258	4.72	0.65	1	5
EK (Experience of Knowledge)		4.46			
EXP6	258	4.66	0.64	1	5
EXP7	258	4.26	1.02	1	5
EP (Personal experience)		3.80			
EXP8	258	3.78	1.37	1	5
EXP9	258	3.64	1.44	1	5
EXP10	258	3.99	1.14	1	5

The results are as follows. Firstly, the determinant of the matrices is far from being one and is equal to 0.044 for the DTM and 0.014 for the DTE.

**TABLE 4**  
**SAMPLING ADEQUACY TESTS**

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	0.769
Bartlett's Test of Sphericity	
Approx. Chi-Square	2187.435
df	190
Sig.	0

Secondly, the Bartlett test shows a Chi-square value equal to 2187.435 with a p-value of 0.000 ( $p < 0.05$ ). The KMO value was 0.769, stating that the sample fitted the CFA (Kaiser, 1974; Cerny and Kaiser, 1977). In other words, the factors are sufficiently correlated for the analysis and the null hypothesis that no correlation exists among them is rejected (Tab.4).

Subsequently, a factor analysis based on the principal-component factors method was implemented (Milan and Whittaker, 1995) and the orthogonal Varimax Kaiser off rotation was applied in order to detect the factors (i.e. constructs) depicted by the dataset from its loading (i.e. weight). The LR test on the factor analysis displayed a chi-square equal to 794.77 with a p-value of 0.0000 for DTM and 1075.88 with a p-value of 0.0000 for DTE, stating its significance.

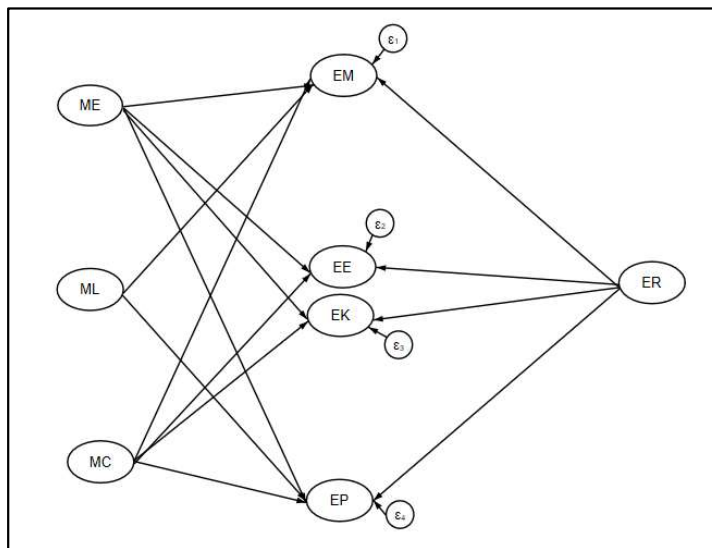
After the rotation and its sorting, each construct grouped all the items with a standard factor loading (SFL) higher than 0.4 together (Field, 2009). The grouping was essentially in line with Yan et al. (2016), thus the nomenclature scheme of the constructs corresponded to the SEM model. In other words, the first factor was called “educational programme” and so the motivation to visit the earthquake site was to learn about the disaster. It was made up of the first three questions of the survey about motivation: MOT1, MOT2 and MOT3. The second construct was the “motivation of leisure” (MOT4, MOT5 and MOT6) and concerned the mere entertainment purpose of the visit, such as spending some time with friends or relatives. The third and last one was the “motivation of curiosity” (MOT 7 and MOT8) and referred to the desire of satisfying their curiosity about the natural disaster.

On the experience side, the first dimension was “moral experience” (EXP1, EXP2 and EXP3), to measure the tourists’ empathy and sympathy for the people involved. The second one was “educational experience” (EXP 4 and EXP5) and concerned the increase of awareness of natural disasters in patriotic and supportive terms. The third construct was “knowledge experience” (EXP 6 and EXP7) and concerned the measure in which the visit induced a better understanding of the disaster and enriched the visitors’ experience. The last experience construct was “personal experience” (EXP 8, EXP9 and EXP10) and regarded how emotions elicited by the visit improved an individual’s perception of his everyday-life conditions.

### Confirmatory Factor Analysis

The second step of the analysis consisted in implementing the CFA. Again, the estimations were conducted using the software STATA/SE 15.1 (see figure 2).

**FIGURE 2  
INITIAL MODEL**





The estimation was run through the maximization of the log likelihood and after eight iterations it showed (chi-square equal to 539.64 and a p-value of 0.0000) that a few paths were not significant and had to be rejected. In particular, the results of the CFA exhibited no significant effect of “motivation of education” (ME) on “moral experience” (EM) ( $p=0.2222 > 0.05$ ), and on “personal experience” (EP) ( $p=0.7589 > 0.05$ ). Additionally, there was no significant effect of “motivation of curiosity” (MC) on “educational experience” (EE) ( $p=0.5971 > 0.05$ ) and on “experience of knowledge” (EK) ( $p=0.4244 > 0.05$ ).

However, most importantly, there was no significant effect of “motivation of leisure” (ML) at all. That is to say that it had to be discarded. In fact, the effect of ML on “moral experience” had a p-value of 0.7868, and the effect on “personal experience” had a p-value of 0.1224. Therefore, the adjusted model had six paths less (see table 5).

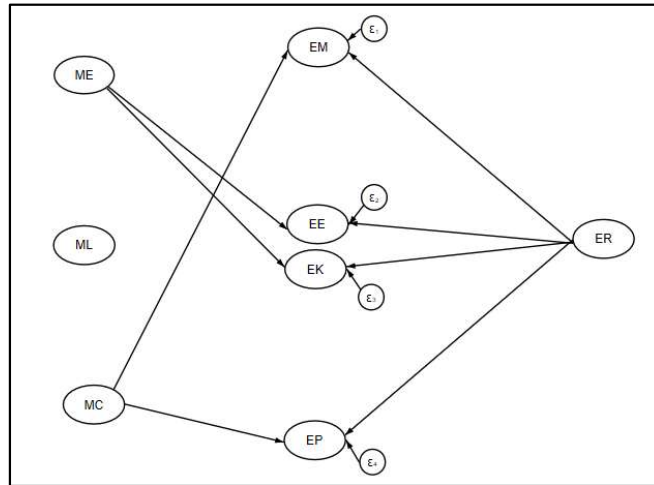
**TABLE 5**  
**RESULTS OF CONFIRMATORY FACTOR ANALYSIS**

	Coef.	Std. Err.	z	P>z	[95%	C.I.]
<b>Structural</b>						
<b>EM</b>						
ME	0.120	0.10	1.22	0.222	-0.073	0.314
ML	0.027	0.10	0.27	0.787	-0.171	0.225
MC	0.197	0.06	3.16	0.002	0.075	0.320
ER	1.109	0.29	3.85	0.000	0.545	1.673
<b>EE</b>						
ME	0.207	0.05	3.81	0.000	0.100	0.313
MC	0.014	0.03	0.53	0.597	-0.039	0.067
ER	0.754	0.21	3.52	0.000	0.334	1.174
<b>EK</b>						
ME	0.226	0.06	3.86	0.000	0.111	0.341
MC	-0.025	0.03	-0.8	0.424	-0.085	0.036
ER	0.981	0.28	3.51	0.000	0.433	1.529
<b>EP</b>						
ME	0.035	0.12	0.31	0.759	-0.191	0.261
ML	0.189	0.12	1.54	0.122	-0.051	0.429
MC	0.214	0.07	2.86	0.004	0.067	0.360
ER	0.680	0.28	2.43	0.015	0.132	1.228

### Hypothesis Testing

The adjusted SEM model showed the following results. All of the remaining paths were highly significant (See figure 2) at the 0.01 level ( $p\text{-value} < 0.01$ ), with one being significant at the 0.05 level. This one represents the effect of “emotional reaction” (ER) on “personal experience” (EP). Moreover, all of the coefficients of the estimations ( $\beta$ ) are positive, thus showing a positive and significant causal relationship between the constructs (see table 6).

**FIGURE 3  
ADJUSTED MODEL**



Again, the SEM model was run via maximization of the log likelihood and in eight iterations displayed a chi-squared value of 545.65 and a p-value of 0.0000, thus indicating a solid goodness-of-fit level.

**TABLE 6  
RESULTS OF STRUCTURAL EQUATION MODEL**

	Coef.	Std. Err.	z	P>z	[95%	C.I.]
<b>Structural</b>						
EE						
ME	0.199	0.05	3.83	0.000	0.097	0.301
ER	0.732	0.20	3.58	0.000	0.331	1.132
EK						
ME	0.195	0.05	3.62	0.000	0.090	0.300
ER	0.937	0.26	3.6	0.000	0.427	1.448
EM						
MC	0.225	0.05	4.27	0.000	0.122	0.328
ER	1.152	0.28	4.05	0.000	0.594	1.711
EP						
MC	0.279	0.07	4.25	0.000	0.150	0.407
ER	0.727	0.28	2.64	0.008	0.188	1.267

## DISCUSSION

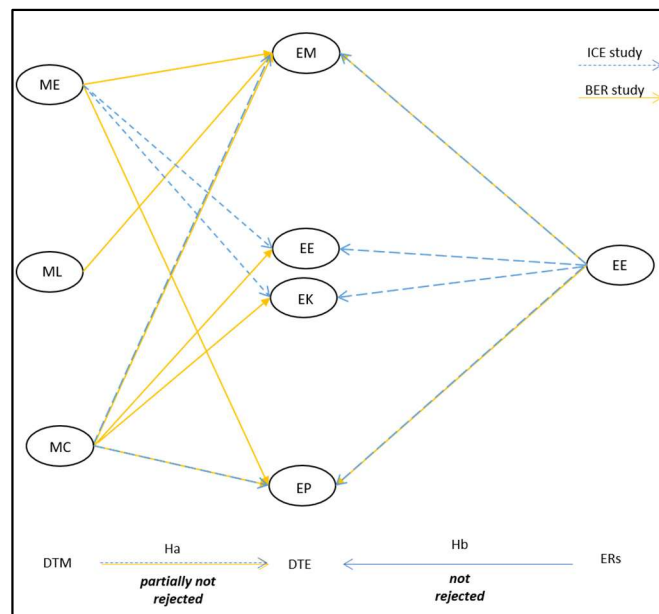
This study aimed to investigate the relationships between motivation and experience, and the latter and emotional reactions, in disaster tourism. To achieve this, a quantitative study was conducted on the Central Italy earthquake (ICE study) of 2016, and the data was analysed through Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA). Moreover, the relationships between dark tourists' motivations (DTM), dark tourists' experience (DTE) and the latter with emotional reactions (ERs) are analysed through the Structural Equation Modeling (SEM), in order to compare the main results with previous literature and in particular regarding the case study of the Beichuan earthquake (BER study), (Yan et al, 2016), examined

using the same methodology. The BER study, actually, was the first case of disaster tourism investigated through SEM, and, as far as we know, the ICE study was the third one and the first European case.

The ICE study reveals interesting findings compared with previous studies and in particular with the BER study. Concerning the ICE study initial general hypothesis, shown in the table X, Ha were partially not rejected, Hb were not rejected, so emotional reactions (ERs) influence the experience on site at all layers investigated. This was in contrast with the BER study, which concluded with both hypotheses being partially not rejected. In the ICE findings it emerges that ERs influence both emotional and cognitive experience, while in the BER study ERs influence only the emotional experience.

Furthermore, eight of sixteen hypotheses are not rejected, which is the same result in numerical terms as in the BER study, however with different connections, as can be seen in Figure 4.

**FIGURE 4  
COMPARED MODEL**



Motivation of education (ME), according to Light (2017), is found to be the principal reason for seeking out disaster sites, and to have a significant influence on the cognitive experience. The main difference between the two compared studies, lies in the motivation of education. Despite the motivation of education (ME) being the main driver in both studies, ICE findings show that ME influences the cognitive experience on site, in relation to education and knowledge, while in the BER study it influences moral experience (EM). This can be interpreted with having a different sample, conditioned by different context as well as a different culture. In the BER study, actually, the majority of the sample are students, that represent 21,23%. Furthermore, sites such as BER, are established by the central government for patriotic education (Yan et al, 2016). Several tourists are involved in educational programs organized by government agencies or schools, in order to improve the sense of collectivism and patriotism. The BER study also explains the meaning of these findings with the special context in China. The BER has already succeeded in supplying emotional experience, which resonates with the Chinese tendency to ‘bemoan the state of the universe and pity the fate of humankind’ (Chinese idiom), (Yan et al, 2016).

On the other hand, the ICE sample does not have a similar expectancy of seeking out specific education or knowledge, however it had cognitive experience on site, with a growth of knowledge and education about the facts that occurred on the disaster sites. This is due to the fact that the ICE sample, not having a specific formation or external stimulus before the trip, looked for a general motivation of education and knowledge, and had a cognitive experience.

In contrast with BER study, the ICE study findings don't reveal a significant influence between motivation of education and moral experience. Motivation of Leisure (ML), is on average the second motivation, in order of relevance for the ICE sample. At the same time, while in the BER study, ML influences moral experience, in the ICE study it doesn't influence any experience on site. Dark leisure is defined as "a form of leisure that is liminal and transgressive" (Spracklen, 2013). According to Light (2017), noticeably, western countries are more ready to accept dark tourism phenomenon compared to Asian countries. Evidently, this is due to the nature of their society that has a significant fascination with things related to death, be it real or fictional, and whether it is media driven or otherwise (Stone, 2006). Morality is revitalised so that dark tourism may act as a "moral guardian of contemporary society" (Stone, 2009).

Motivation of curiosity (MC) is the less important on average and similar to BER study, however it influence either cognitive and emotional experience. The low result on average to this result can be influenced by the fact that there was a tendency to be critical of visitors to dark places, assuming them to be ill informed, likely to see such places as little more than entertainment, or likely to behave inappropriately or disrespectfully (Light, 2017; Beech, 2001; Braithwaite & Leiper, 2010; Clark, 2014; Frew, 2012; Gould, 2014; Krisjanous, 2016; Lennon & Mitchell, 2007; Sather- Wagstaff, 2011).

## CONCLUSION

Since time immemorial, the uncertainty of life and the mystery of death have attracted people, for several reasons. Moreover, the opposite of life is not death, but rather birth is the opposite of death. Death is an essential ingredient, rather than the opposite, of life, (S. Pratt et al, 2019). As shown, the findings resulted as being in some cases similar to the case study of the BER, Beichuan earthquake relics, (Yan et al, 2016) and in others, really different. However also when they were similar, their interpretation needs to have a substantial cultural context adaptation.

The most important finding is that Motivation of Education (ME), according to Light (2017), is the main reason for visiting disaster sites, and influences the cognitive experience, in contrast to the BER study.

Disaster sites inevitably attract tourists. The impacts of a disaster continue long after the media lose interest. Thus, tourism may be an effective means of continuing to highlight the plight of a disaster area when it is no longer headline news, (Wright, 2016). Tourists who desire to visit disaster sites, seek out education and knowledge experience, which suggests that practitioners, and policy makers should manage the phenomenon, in order to transform a tragedy into an opportunity for locals and tourists. Because disaster recovery processes are significantly hard to bear, it is important to understand that they offer a series of unique and valuable opportunities to improve the status quo. Capitalizing on these opportunities means to well equip communities to advance long-term health, resilience and sustainability and prepare them for future challenges (Ricciardelli et al, 2018). As tourists engaged more proactively, seeking to understand the disaster more fully, local residents became more appreciative of their presence, (Wright, 2016). "Nothing can become true knowledge unless it has haunted us relentlessly. All other acquisitions are of a mathematical or technical nature. Their consequences take us by surprise because they have not made us suffer" (Canetti, 1999).

The BER study, did not find any influence between ME and cognitive experience, because of a cultural perspective within the special context of China, which has low uncertainty avoidance (Yan et al, 2016; Rittichainuwat, 2008), however the educational program purpose is present, but it doesn't work efficiently, thus implying a failure of the program (Yan et al, 2016). In the ICE context, there isn't such a structured cognitive purpose, nevertheless the findings show that disaster tourists seek out, and experience a cognitive experience.

The same concept that Causevic and Lynch (2011) have applied on places of conflict, can be applied on disaster sites. Causevic and Lynch (2011) named it phoenix tourism, where the place of conflict is re-imagined and developed into a new place, in order to consider and promote the motivation and needs of disaster tourists, related with the specific context. These practices are imbued in emotion, and can be a vehicle for the re/branding of destinations (Wu, Funck, & Hayashi, 2014), or for nation-building strategies (Martini & Buda, 2018; Sharpley & Stone, 2009; Tunbridge & Ashworth, 1996). The broader question is

whether it is acceptable to profit from death or the macabre (Garcia, 2012; Seaton, 2009). This debate has also been prominent outside the academy (particularly within the print media) where it has sometimes attained the status of moral panic (Seaton & Lennon, 2004; Sharpley, 2009). Other debate has focused on the visitors themselves: Ashworth and Hartmann (2005) present the argument that atrocity tourism “may anaesthetize rather than sensitize visitors, and increased contact with horror and suffering may make it more normal or acceptable, rather than shocking and unacceptable” (see also Ashworth, 2004, 2008; Robb, 2009).

The academic discipline of marketing has paid scant attention to dark tourism (Light, 2017; Brown, McDonagh, & Shultz, 2012).

As a marketing tourism management strategy it can be implemented with a proactive approach, in order to manage the needs of cognitive experience of disaster tourists, adding education and knowledge contents to the touristic purpose. For example establishing official focal points or memorials for tourists to seek out, providing them with signage, information or guided tours, and by helping them to engage with the place and the community rather than gazing passively at the destruction (Wright, 2016).

This study is important to better understand the dark relationship behind the motivation and the experience in disaster tourism, and for the first time SEM was applied to a disaster tourism area in a European study. There are however certain limitations including some that are similar to those of the BER study. The designed questionnaire is the main similar limitation, which does not consider the group that was closely related with victims, as well as ignoring the dimension and nature of the emotional reaction. Further research may consider these factors through a qualitative research method, using in depth interviews, and investigating different cases, exploring darkness.

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