Post-terrorism image recovery of tourist destination: a qualitative approach using Fuzzy-VIKOR

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Abstract

Purpose – This study aims to cover issues regarding traveling to a tourist destination which has seen war and terrorism. These problems can be addressed altogether, as they are interrelated. Based on tourists' opinions, this paper aims to focus on measures or steps that can be taken to ensure changing their perceptions about a certain destination.

Design/methodology/approach – This study targets tourism experts for their opinions regarding the measures most necessary to change the perceptions of tourists. Their opinions were extracted through a questionnaire based on three criteria with four alternatives. Furthermore, raw data extracted are studied using the Fuzzy-VIKOR technique to rank the alternatives in order of importance. Moreover, the questionnaire also aims to know the perception of participants by asking them what would make them trust a destination with a history of terrorism.

Findings – The problems captivate the attention of government, guiding them to ensure that they need to focus more on physical security of tourists if they expect tourism industry to thrive. It was found that the steps needed to be taken are in the areas of international trade, cultural exchange programs and social media advertising.

Originality/value – Research based on improving tourist perception of Pakistan to develop Pakistan as a tourist destination is scarce. The study takes four different alternatives into account for image recovery and based on those alternatives, it provides a unique solution to the government in this regard with the necessary steps they need to take and attempts to help the government ensure tourism expansion in the country.

Keywords Pakistan, Tourism, Terrorism, Fuzzy-VIKOR, Image recovery

Paper type Research paper

Introduction

The tourism industry is susceptible to both natural and man-made disasters. However, people tend to get over natural disasters whereas incidents of terrorisms have long-term effects and lead to cancellation of travel and vacation plans (Sönmez *et al.*, 1999). The perception of tourists about a certain travel destination also gets affected when terrorists target a location having the least chance of terrorist activities (Wolff and Larsen, 2017). This study focuses on understanding tourist perceptions about tourist destinations that have, in the past, suffered from incidents of terrorism. Similarly, it also aims to investigate what

alternatives can help change tourist perceptions on such destinations. This will help boost the tourism industry and create a positive image of the country globally. The other objective is to recommend ways to ensure that the negative perception of the tourists can be countered (Hystad and Keller, 2008) and measures the government of a country must undertake to ensure their domestic travel destinations are safe and are perceived as harmless by international tourists.

Terrorist activity at a tourism destination causes potential tourists to drop their plans. For tourists, physical safety is a top priority. Therefore, when tourists make plans for traveling, they ensure that the destination is safe and free from violence and terrorism (Arana and Leon, 2008). Terrorism is growing throughout the world with its effects all over the globe; consequently, some countries have completely lost their tourism industry. People prefer to go to a place that has no implications of being violent in any way. If the incidents of terrorism are completely random without the chances of reoccurrence, people usually tend to forget about it with time. Image of tourist destinations in the minds of tourists is essential because it reflects an individual's perception about a specific location and the country (Sun *et al.*, 2013; Molina *et al.*, 2013). Frequent acts of terrorism can tarnish a country's image leading to tourists avoiding the place and eventually the country loses out on tourism.

The image people associate with a certain country plays a great role in helping them decide whether they should or should not travel there. Tourists are pretty sensitive in this matter, as they would never want any terrorist activity to happen in their evoked destination (Kozak *et al.*, 2007). As different brands have different images and consumer perceptions about them, likewise, countries too come with their own unique images and perceptions. America is known as the land of dreams (Brown, 2011). Paris is known as the city of love (Turnbull, 2004). Switzerland is known as heaven on earth (Landes and Landes, 2011). Malaysia is advertised as "Truly Asia" (Morais, 2013). Similarly, countries can and should effectively manage their image so that the mention of its name can evoke a positive image in an individual's mind. It means they can trust the place, that they will be safe there and they can travel without any fear or doubt (Yoon and Uysal, 2005). The ideas being explored in this paper are: how much of an effect does a perceived "image" of a tourist destination have on tourists' decision to travel to that place? Similarly, how can negative image of a tourist destination be reverted in the minds of tourists? The paper has selected three criteria and four alternatives as shown in Figure 1.
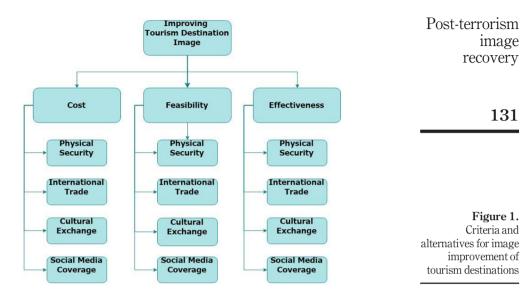
For this purpose, the variables chosen will help us comprehend what tourists believe can change their perception of a tourist destination that has been affected by terrorism. Alternatives are mentioned below.

Physical security
The first alternative for this study is the implementation of tangible measures for physical security. This could be in the form of increased police presence, security guards, identity checks, border patrols, check-posts. Etc. (Doherty *et al.*, 2008). The local authorities of a tourist destination can install strict measures to ensure the safety of visiting tourists. It can help change tourist perception of a certain tourist destination (Chon, 1991).

Positive social media coverage
The second alternative of this study is positive social media coverage. The tourism industry is highly sensitive and even the slightest of negative reviews can seriously damage the reputation of a tourist destination (Pantano and Pietro, 2013). From Pakistan's perspective, the media played a negative role in destroying the country's image; however, it can be used positively for its restoration too. Any violent incident should not receive media attention;

instead, efforts conveying to both domestic and international tourists that Pakistan is a peace-loving nation should be publicized.

International trade
International trade is the third alternative in this study. It can help open routes for economic growth, innovation and general prosperity of all countries involved (Schneider, 2005). Increasing international trade is key to a booming economy and also attracts tourists (Jenkins, 1999). Therefore, it can safely be said that international trade is also a way to improve a tourist destination's image.

Cultural exchanges
The fourth and last alternative in this study is cultural exchanges. It is crucial that countries safeguard their tourist destinations for tourists to visit. This will allow for the country to be associated internationally with positive perceptions and images, as this is key to boosting the tourism industry. People can be convinced to participate in cultural exchanges so that it will increase the attachment between hosts and visitors. This will affect the tourism industry positively (Lee, 2013).

Literature review
With the passage of time, tourism has evolved. It is an indication of evolution in the industry. (Aldebert *et al.*, 2011). Although the industry has suffered many obstructions in the past such as the frequent instability in Eastern Europe; the Persian Gulf War; the ongoing Syrian and Egypt civil wars and the general state of political instability in the Middle East (Keith, 1996; Arch, 2013), changes over time show the evolution of this industry has been very rapid. Obstructions such as political instability have affected this industry to a very great extent. An analysis of 139 countries over the period of 1999-2009 shows that political instability results in negative perception in tourists' minds and thus decreases their numbers (Liu and Pratt, 2017). Tourism industry expands along with an increase in revenue

when political instability decreases (Yap and Saha, 2013). In 2011, the tourism industry in its totality generated about US$2 tn in direct GDP. Similarly, in 2017, the tourism industry contributed US$8272.3bn in direct GDP (10.4 per cent of GDP). This figure is expected to rise by 4.0 per cent in 2018 (Council, 2018). This contribution to global GDP is enormous, and it is twice the size of that of the automotive industry and more than one-third larger than the global chemical industry. These statistics depict that if properly managed and developed, the benefits of this industry can be reaped on multiple monetary and non-monetary levels. Development of the tourism industry is directly proportional to the economic growth of a country (Lee and Kwon, 1995). However, it does not always happen (Elliot *et al.*, 2011). This study primarily focuses on studying the impact of terrorism on the tourism industry and looks at ways through which countries can undertake image recovery measures post terrorist attacks and thus change tourist perceptions about affected tourist destinations. Furthermore, this study also tends to prioritize the factors that can persuade tourists to visit a terrorism-affected destination.

There are some influential studies on the subject; Atkinson *et al.* (1987) recorded empirical evidence that increases in bargaining costs prolong terrorist incidents. Holden (1987) tested for the effects of historical cases of hijacking that were successful following the rate of hijacking attempts. Similarly, (Inglada and Rey, 2004) highlighted the event of September 11 terrorist attacks and its effects on Spanish air travel demand.

However, the most notable study on the subject so far has been by Enders and Sandler (1991) and Enders *et al.* (1992). Their research tries to empirically establish a link between terrorism and tourism, while using the tourism sector of European countries as a sample. They applied vector autoregressive analysis (VAR) on monthly data and discovered that there is a significant negative impact of terrorism on tourism in Spain. Enders, Sandler and Praise studied data from European countries for the years 1974-1988 and found out that terrorism has an extremely negative effect on the tourism industry revenue. Furthermore, knowledge extracted also showed that tourists substitute those countries with destinations where the risk of a terrorist attack is minimum. Another study, by Drakos and Kutan (2003) scrutinizes the effects of terrorism in a regional setting. The empirical evidence extracted from the paper suggests that terrorist activities have a significant adverse impact on the tourism industry and tourist arrival rates. They use estimation methodologies such as the seemingly unrelated regression method which makes exceptions for both the immediate and lagged effects of terrorism on tourism.

Maximum number of empirical studies suggest that terrorism has a significantly negative impact on tourism and the tourism industry of a country. Tourists' previous international experience influences their response to terrorism (Cook and McLeary (1983), D'Amore and Anuza (1986)). Hartz (1989) argues that tourists modify their plans for travel to a destination in accordance with the lowest risk associated with terrorist attacks, as they would always prefer a country where law and order situation is much stronger and where they have the surety of their own safety. Gu and Martin (1992), Enders and Sandler (1991), Enders *et al.* (1992) and Mansfield (1996), all argue that the security situation of a country directly correlates with the rate of tourist arrivals in that country. They insist that a significantly negative relationship exists between terrorism and tourism and the higher the risk the lower the number of tourist arrivals and vice versa.

Furthermore, Henderson *et al.* (2010) studied the effect of terrorist activities on the hotel industry of Singapore. After holding four interviews, they discovered that terrorist activities have a negative impact on the destination where the activity occurs. They also found that hotels are an attractive target for terrorists and that the management of Singapore's hotel industry is working toward securing the hotels after finally realizing the risks. Therefore, a

maximum of studies depicts that terrorism has a significantly negative impact on the tourism industry and the tourism arrival rate. Mentioned literature focuses on tourist arrival rates and the general effect of terrorism on the tourism industry. Similarly, some studies target one area at a time like for example forming media strategies, security at a tourist destination, etc.

In this study, our objective is to examine the alternatives related to the perceived image of a destination to terrorism. Perception of a tourist destination that is affected by terrorism is a topic heavily discussed in the previous literature. According to Edgell and Haenisch (1995), international and national terrorism has a devastating effect on tourists and creates an environment of fear. When news channels broadcasted attacks in major cities of Europe, thousands of tourists canceled their plans to Turkey in the winter of 1999 and 2000 (Sonmez and Ercan, 2002). People naturally tend to prefer low-risk destinations (Rittichainuwat and Chakraborty, 2009). Furthermore, the tourism industry of a country attracts tourists through various marketing strategies. The images created in the minds of tourists influence their perception of a tourist destination (Govers *et al.*, 2007). Although these studies identify the impact of a tourist destination's image on a tourist's mind, especially from Pakistan's perspective, they lack alternatives or measures that can influence a tourist's perception simultaneously. In this study, our goal is to cover that gap. The reason for this study is to get to know what factors can create a positive perception. There can be many measures and, in our study, we are going to examine four of them. The priority allocated by participants to these measures will help us understand tourists' thinking even more. The study can thus make it easier to narrow down the perfect measures necessary. The government can get help from this study to ensure the tourism industry makes its mark in the country once again. Through this research, we are trying to help our tourism industry stand on its feet once again. It carries much importance as it will be more feasible for a government that what steps it should take.

Our primary focus is based on four alternatives collectively. A study that can help us conclude the best alternative that can have a greater impact on improving a tourist destination's image, based on participant's opinion. Similarly, the study will also help us conclude what factors can convince a tourist to visit a destination that has been previously under terrorist attacks. The factors will be prioritized by the participants, which will convince them to visit a terrorism-affected tourist spot. These factors have not been examined simultaneously before and is thus a novelty in this study.

The four alternatives in this study include physical security, positive social media coverage, international trade and cultural exchanges.

The first alternative is the implementation of physical security to deal with terrorist activities. Terrorism has expanded around the globe in the past few years, especially in the tourist destinations. Many of these activities have political motives. Mainly, the terrorists are driven by vengeance either in the political or religious way. They target those areas because it can get them immediate international media attention. Striking tourists will send a big message to the world and this proves to be a big motive for terrorists. Preventing these is a tough but important task which needs a lot of government attention and tight law and order situation (Paraskevas and Arendell, 2007; Pizam, 1999). Seeing is believing, so the presence of security personnel and frequent police patrols can convince current tourists that the local authorities are actually taking measures to protect them (Tarlow and Santana, 2002). An example of security measures can be proved from the fact that at the time when the Middle East was under a lot of political unrest, Israel began peace talks. They also formed a comprehensive strategy for the physical security of tourists. This resulted in a huge influx of tourists into Israel (Mansfeld, 1999). Similarly in Pakistan, foreign tourists or business personnel are usually provided with reinforced vehicles and security guards when

they travel to areas that were or are considered liable to terrorist attacks. An example of these arrangements is when the World XI visited Pakistan, they were provided with presidential protocol whenever they visited some place or traveled to the stadium.

Physical security measures are essential to send out a positive perception to the world. If not done, tourists will shun those countries. In this day and age, it is among the five global forces that will carry forward the tourism industry in the future (Choon, 2000). Providing appropriate facilities at the tourist destinations along with proper physical security measures is an enormous necessity nowadays. The biggest example is when FIFA was making sure of the security arrangements in South Africa for FIFA World Cup 2010. Only after proper confirmation and security plan, they allowed the tournament to be held in the country (Donaldson and Ferreira, 2009). These are some of the reasons for choosing physical security as an alternative.

The second alternative to improve a destination's image is the positive social media coverage. With the advent of the smartphone, billions of people worldwide have access to all kinds of social media platforms such as Twitter, Instagram, Facebook and travel guide applications such as TripAdvisor. People take influence from these applications, as they act as the modern-day word-of-mouth (Glynn and Faulds, 2009) descriptions. There are numerous examples of how the Internet can make or break a thing, a person and a place. For instance, the smallest mistake, such as a hair in the food served, a dentist that makes patients wait, a grocer that is always out of stock can reach millions worldwide and carry serious repercussions for the business. Same is the case for a country when it is under severe attacks of terrorism and fear. A country's image is sabotaged to a great extent when any of its locations are targeted by terrorists. These activities shape the image of a country rather badly (Alvarez and Campo, 2014). Consequences include not just losses in tourist business, but also portraying an international image of the entire country as being volatile and hostile. Terrorist activities are the issues that threaten a destination's image and reputation (Putra, 2010). Therefore, it is essential that a country's image is carefully managed and protected. For a major part of the past, the media role has been thoroughly negative. Highlighting terrorist attack at famous destinations have been very common. The result is that tourists refrain from visiting those parts (Eagles *et al.*, 2002). Electronic and social media giving coverage to the positive aspects is an important solution to this. Highlighting what those destinations have to offer, filming documentaries and showing it to the world in a positive way can be affect the country's image positvely (Avraham, 2004). When undertaking such efforts for image recovery, authorities can resort to advertisements through social media platforms. The local and national authorities can operate social media pages that publicize and advertise the tourist destinations which can result in an increase in tourist arrivals. They can also host events such as food festivals or beauty pageants to attract foreign nationals. Festivals are necessary for creating economic stability and forming a positive image of a region (Moscardo, 2007). Tourists participation and activities in these festivities can then be publicized.

Since 2001, there has been a dramatic increase in the number of terrorist attacks around the globe including Pakistan. These attacks were then broadcasted live all over national and international media, thereby creating a very negative image worldwide regarding Pakistan. This has in turn led to few sporting events staged in Pakistan that may comprise international players. Sports, such as cricket, are declining in the country. To counter that, the government began a cricket league. Pakistan Super League is a sporting event that has both national and international players competing in it (Hasaan, 2016). The event receives extensive electronic media and social media coverage. It portrays a very positive image of Pakistan to the rest of the world. Also, the international players competing can help create a

positive image of the country in response to their usually pleasant and secure experiences of staying in Pakistan.

International trade is the third alternative in this study. Trade should be encouraged and investments should be made in this sector. It is something that holds great potential to help a country in creating and growing its market globally (Papadopoulos and Heslop, 2014). However, another advantage offered by international trade is that it opens doors for both foreign investment and foreign travel. It helps in the profitability of the tourism industry in a country, making its economy stable and an increases the influx of tourists (Britton, 1982). With increasing tourism, international trade expands; however, the country's image needs to be perfect for this scenario to happen (Laroche *et al.*, 2005).

For business or leisure purposes, foreigners traveling to a place take back with them a certain image and experience of the host country in the form of memories. That image and experience should be carefully managed to ensure that whatever travels back with the tourists, is in good will of the hosting country (Pizam *et al.*, 2000). For instance, the China Pakistan Economic Corridor is a foreign investment worth billions of dollars. With it, there has been an influx of foreigners, mostly Chinese individuals in Pakistan. The authorities must ensure that the experiences of these individuals are pleasant along with the security, that the time they spend here will be safe and secure (Safdar, 2014). Therefore, the government of a country must use business investment as a means to achieve the target of creating a positive image of their country in the minds of foreigners.

This study will investigate how much an international trade will matter in creating a positive perception of a country in minds of potential tourists. Similarly, the "identity or personality" of a country as a perfect tourist destination should be communicated internationally for the purpose of creating a positive image globally. For this purpose, the main step would be to host events such as seminars and conferences, trade shows, executive incentive programs, global market events or in the case of Pakistan, arrange SAARC events regularly (Erica, 2009). This statement holds the importance of trade for a positive perception of a country and also a reason to choose it as an alternative.

Improving a tourist destination's image through cultural exchange programs is also among many solutions (Jr, 2008). Advertising a travel destination as safe and secure can only be made possible if the country that holds that destination is internationally associated with positive perceptions and images. Similarly, cultural exchanges help the tourism industry by creating a positive relationship with the hosts and improvement in their lifestyle (Andereck *et al.*, 2005). People of the hosting countries also consider the visiting tourists as a positive impact on the tourism industry. Similarly, meeting the tourists from other countries is a lifetime opportunity to learn their social and cultural values (Yoon *et al.*, 2001). This results in an influx of tourists along with money and improvement of the image of the tourist destination. Local traditions and culture can be presented around the world and can help a country get out of its miserable past (Besculides *et al.*, 2002; Gursoy and Rutherford, 2004).

Based on these alternatives and their relevant studies, one can guess their importance, and that is what our objective is. Investigating these four alternatives will give us solid results, based on the priorities set by the participants.

There are many approaches under the heading of Multi-Criteria Decision Making (MCDM). For instance, there is the Analytical Hierarchy Process (AHP), Technique for Order of Preference of Similarity (TOPSIS), along with several others. This paper uses Fuzzy VIKOR which was recently developed by Opricovic. Fuzzy VIKOR was developed to solve MCDM methods that may have a conflicting result. The fuzzy set theory was developed as a means to solve fuzzy problems, variables that are uncertain, that are qualitative and are not easily thus quantifiable. The fuzzy set theory was developed by Zadeh (1965). This theory is

implemented for mapping the linguistic variables to numerical variables to assist in decision-making processes. It allows the decision maker to identify the best ideal solution, while at the same time providing a method for conflict resolution for similar results. Fuzzy VIKOR focuses on ranking and selecting different alternatives, from among conflicting criteria and allowing the decision maker to identify a suitable solution (Lu and Liu, 2012). This is a very comprehensive method that allows for the manipulation of linguistic variables. In some assessments, the research contains geographical destinations or areas or certain economic factors whose boundaries are not easy to study. Fuzzy Vikor makes those assessments simpler for analyses (Kaya and Kahraman, 2010).

MCDM are constantly used by researchers, as they provide a stable solution for decision-making problems. The VIKOR method from the category of MCDM techniques is also a multi-criteria optimization and compromise solution. It is an innovative approach that holds priority above other methods in problems of final ranking with accurate precision (Fallahpour and Moghassem, 2012). In this study, our objective is to rank a perfect alternative that can prove to be more applicable to improve a destination's image. To do so, we need accurate ranking and VIKOR method provides that solution in a perfect way. Recently, the use of the VIKOR method has increased in research. Liu *et al.* (2012) used the VIKOR technique along with DEMATTEO and ANP methods as to explain how the tourism policy management in Taiwan can be improved. Wu *et al.* (2002) combined both ANP and VIKOR methods to rank different universities upon their respective performance evaluations.

Data collection and methodology

This paper uses Fuzzy VIKOR to conclude which alternative is ranked as highest and which one is ranked as lowest by decision makers. For data collection, a web-based questionnaire was created which then was distributed among 80 participants. The participants comprised students, tour organizers in those areas, tourism experts and managers of those areas, student-run societies from different institutes, transport facilitators and TripAdvisor experts. Participant profiles along with their sample numbers are given in Table I. The questionnaire was distributed to many tourists, but as mentioned above, only 80 of the participants filled in with their point of view. Profiles of the participants are categorized in this table based on their numbers. Along with their responses to the four alternatives based on the three criteria, they were asked what facts can change their perception positively to travel to a destination, previously affected by terrorism. The facts that could make them trust a tourist destination previously affected from terrorism were:

- Strict physical measures in the form of police presence, identity checks, etc.
- Someone they know and trust has recently toured to that destination and convinces you that it is safe once again.
- Social media advocating that destination as being safe, secure and pleasant.

Participant profile	No.
Students	25
Tour organizers	14
Tourism experts and managers	11
Student-run societies from institutes	16
Transport facilitators	08
TripAdvisor experts	06

Table I.
Participant profiles

- Foreigners visiting that affected destination frequently.
- Terrorism activities have declined around the world as the time has passed.

These responses will be highlighted in the discussion section.

For data collection, both primary and secondary data were used. Secondary data were extracted from government reports, such as PTDC, for this study. Countries' data, economic figures were extracted from secondary data. The questionnaire was divided into four different sections. Each section was dedicated to one alternative under study. The questions asked were regarding the attributes of the alternatives and asked for the participants' names and their occupational status. Participants were asked to prioritize them on a scale of (Very Low, Low, Medium, High and Very High). The five-point scale (Very Low, Low, Medium, High and Very High) shows the linguistic variables specified for each alternative under study. These variables were introduced by Zadeh (1975) and they are used to demonstrate the performance of qualitative criteria. In other words, these variables help in solving ill-defined situations in traditional quantitative statements. The responses recorded from the questionnaire were then manually worked upon using the Fuzzy VIKOR method to get the required rankings. The criteria chosen were cost-effectiveness, the feasibility of alternative and effectiveness or impact of an alternative.

The questionnaire included four alternatives which were:

(1) physical security;
(2) positive social media coverage;
(3) international trade; and
(4) cultural exchanges.

Participants were asked to choose which alternative was the most effective in terms of cost, which is the most feasible to apply and which is more likely to have the greatest impact on creating a positive perception in minds of tourists. Four alternatives are ranked on the basis of these three criteria with priority set by the participants in the form of rating. The ratings for each criterion are then multiplied with triangular fuzzy numbers of each linguistic variables. Triangular fuzzy numbers help in the approximate reasoning of linguistic values (Alguliyev *et al.*, 2015). The values obtained are then studied to obtain the fuzzy weight of each criterion which in turn generate crisp values or Q values by using the relation of BNPi (Best Non-fuzzy Performance). The maximum and minimum the fuzzy weights are then calculated. Further steps and procedure are described in the following stages.

Step 1: The fuzzy decision matrix is constructed along with the weight vector as shown in Table II.

$$
A = \begin{bmatrix} x_{11} & x_{12} & \cdots & x_{1v} \\ \vdots & & \ddots & \vdots \\ x_{u1} & x_{u2} & \cdots & x_{uv} \end{bmatrix} \tag{1}
$$

Very Low	0, 0, 0.25
Low	0, 0.25 ,0.5
Medium	0.25, 0.5 ,0.75
High	0.5, 0.75, 1
Very High	0.75, 1, 1

Table II.
Linguistic variables
for the rating of the
chosen criteria and
alternatives

In equation (1), the matrix format represents values of the ratings in general form. Here i = 1, ..., u represents the alternatives and j = 1, ..., v represents criteria.

Step 2: The fuzzy-Best and the fuzzy-Worst are examined by the following equations:

$$D_{ij} = \frac{1}{t}\left[xD_{ij1} \oplus D_{ij2} \oplus \ldots .D_{ijk} \oplus\right] \tag{2}$$

$$C_L = \frac{1}{t}[C_{L1} \oplus C_{L2} \oplus \ldots .C_{Lt} \oplus] \tag{3}$$

Equation (2) and (3) with C and D values, calculate aggregated fuzzy ratings of alternatives with respect to each criterion:

$$Y = \frac{(c - a) + (b - a)}{3} \tag{4}$$

$$BNPi = Y + a \tag{5}$$

Equations (4) and (5) represents the use of Center of Area (COA) method for the purpose of ranking the order of importance of each alternative. In equation (4), a, b and c values are triangular fuzzy numbers and they represent lower, middle and upper values, respectively. BNPi is achieved in equation (5). In this equation, the value of Y obtained in equation (4) is added to the lower limit to achieve BNPi value. Y holds the value of equation (4) (Organ and Yalcin, 2017).

Step 3: The maximum and minimum of the fuzzy weights calculated are now to be used.

$$W^* = [w_1, w_2, w_3 \ldots \ldots w_L] \tag{6}$$

$$\left(g_j^*\right) = \max_i \; x_{ij} \tag{7}$$

$$(g_j^-) = \min_i \; x_{ij} \tag{8}$$

Step 4: The BNPi values for the alternatives are now substituted in another matrix and calculated to find the S and R values through equations (9) and (10). After this, the minimum and maximum of the S and R values are used, calculated through the equations (12-15). The values now obtained are fed into equation (11) to calculate the Q values:

$$S_i \; = \sum_{L=1}^{n} C_L \; \left(f_L^* - \; f_{iL}\right) / \left(f_L^* - \; f_L^-\right) \tag{9}$$

$$R_i = \; \max_{L=1}^{n}[C]\left(f_L^* - \; f_{iL}\right) / \left(f_L^* - \; f_L^-\right) \tag{10}$$

Equation (9) shows the expression used to calculate Si value (utility measure). Utility measure means that we focus on the facilities, materials, etc. Similarly, equation (10) shows

the calculation of Ri value which is termed as Regret measure. Regret measure includes the values which we usually tend to minimize, such as the cost for instance:

$$Qi = \frac{v(S_i - S^*)}{(S^- - S^*)} + \frac{(1-v)(R_i - R^*)}{(R^- - R^*)} \tag{11}$$

$$S^- = \max_i \ S_{ij} \tag{12}$$

$$S^* = \min_i \ S_{ij} \tag{13}$$

$$R^- = \max_i \ R_{ij} \tag{14}$$

$$R^* = \min_i \ R_{ij} \tag{15}$$

Q, S and R values obtained from equations (11) to (15) are used to rank the alternatives (Shemshadi *et al.*, 2011).

Step 5: The alternatives are now ranked, sorting by the values S, R and Q, in the ascending order.

Results

The raw data obtained through an online questionnaire yielded responses of 80 participants as mentioned above. The data were interpreted with the application of the Fuzzy-VIKOR technique, an MCDM approach that assists in decision making when there are both multiple criteria and multiple alternatives. Five-point linguistic variables mentioned in Table II were used, which allot importance to all criteria for each alternative. Fuzzy-VIKOR was incorporated to interpret the data manually and get the required rankings. Those rankings show the best alternative which is considered more important by the tourists to help the government in improving the image of a tourist destination and the country. Other alternatives follow in the ascending order of their priorities set by the participants in the survey. The results are in the form of S, R and Q values, that rank the alternatives in the order of their importance. All the calculations required to arrive at the S, R and Q values have been calculated in AI-IV.

The application of Fuzzy-VIKOR led to the ranking of the alternatives in the following ascending order:

- physical security;
- increase in international trade;
- cultural exchange; and
- positive social media coverage.

Table III contains the maximum and minimum values. They depict the distance of the alternatives from the ideal solution of zero. A solution cannot be negative, and hence, zero forms an ideal limit. Maximum and minimum values are distances calculated from the number zero. Zero is the reference point and the distance from this point shows how much feasible a certain alternative is. Being at a minimum distance from the ideal solution of zero will conclude an alternative being a perfect choice. Distance is usually calculated from the

difference in the distance of Q value from the limit zero (Kim and Chung, 2011). Just like in Table III, Physical security has a Q value of zero which proves physical security to be a most feasible alternative. Similarly, the term R* (R. steric) in Table II depicts the minimum value of regret measure Ri.

Table IV depicts the alternatives and their Q Value, thus allowing us to determine their distance from the ideal solution of 0. The Q values or crisp values are then ranked in the ascending order to obtain the preference of the alternatives. Physical security is ranked one after the analyses is completed. It is evident that the experts or participants judged physical security to be the most preferred method of image recovery because physical security is at the minimum distance from the ideal solution of zero with a Q value of zero. The next alternative is the increase in international trade with other countries. It the second-most popular alternative closest to the ideal solution of zero with a Q value of 0.12. The third most important alternative is cultural exchange. It has a Q value of 0.20. The last alternative is positive social media coverage with the highest Q value of one.

So, after the analysis, it is certain that for tourists, physical security is the most important scenario when they are making plans to visit a destination. Minimum distance from an ideal solution of zero confirms our conclusion. The rest of the alternatives are ranked based on their increasing distance from an ideal solution. Alternatives having a greater distance from the ideal solution (social media coverage) is least important from tourists' perpective. Being the least important alternative does not mean we can rule it out, but the study shows that it will not have a greater effect.

Furthermore, in another question, the participants were asked that what factor can influence their perception to visit a spot that has been affected by terrorism in the past. They were given five choices to choose from. Out of the five choices, they chose proper security arrangement at a tourist spot will make them change their perception and compel them to visit that location. Therefore, the presence of security protocol is necessary for those locations.

Discussion

The criteria upon which the decisions of experts were based were cost, effectiveness and feasibility. These criteria are the "benefit" criteria. Order of the alternatives for each criterion was obtained. Results are summarized in Table V.

It was concluded that physical security was the best alternative among all alternatives and most recommended to be implemented.

For the "least costly" criteria, positive social media was the first choice followed by physical security. Furthermore, expansion in international trade agreements and cultural

S. neg	S max		0.571961934
S. steric	S min		0.403650952
R. neg	R max		0.201967213
R. steric	R min		0.168193548

Table III.
Maximum and minimum values

	Physical security	Positive social media coverage	Increase international trade	Cultural exchange
Q values	0	1	0.120541404	0.207749536

Table IV.
Q Values/crisp values

exchanges were ranked third and fourth respectively, in this category. For feasibility criteria, physical security was considered the most feasible to implement followed by positive social media coverage, cultural exchange and international trade. In terms of effectiveness, experts believed that physical security was the number one option followed by cultural exchanges, international trade and positive social media coverage. In short, among all alternatives, physical security was a top priority for experts.

"Feasibility" was the second criterion. This measure attempts to asses if or not an alternative is applicable. It evaluates the practicality of an alternative. According to the weights, the highest was assigned to the implementation of physical security measures. It was determined that the given alternative is easy or at least physically, legally and financially possible to implement.

The other criterion chosen was the "effectiveness" of a certain measure taken for improvement of the destination's image. There is no point in implementing decisions without knowing the level of effectiveness associated with them. Therefore, the experts were also asked to rate how effective they feel an alternative can be. Effectiveness was in terms of the impact caused by the criteria. The idea was to assess which alternative would have the largest impact on changing tourist perception about a given destination. The results indicate that experts feel that the presence of physical, tangible measures of security would surely help a destination recover their tarnished image.

Experts rated physical security measures as the most preferred alternative. When we talk about physical security we talk about the presence of security personnel, check-posts, border and street patrol, identity checks, fortified buildings, hiring a security guard, etc. Anything that falls under the umbrella of tangible measures can be defined as physical security.

The second alternative ranked by experts is the expansion of international trade agreements. Experts believed that the more a country attempts to change its international image by signing trade agreements with other countries, the more it can improve its image. It is important that when foreign investors come to a country they should feel safe not just personally and physically, but also economically. Any country plagued by frequent terrorist attacks as in the case of Pakistan needs to assure foreign investors that the attacks were just a horrible past. It needs foreign investment to build its economy. Pakistan already has a substantial amount of tourist destinations. It is rich in culture and landscapes. There is something here for every kind of tourist. Pakistan has a strong base for developing a successful and thriving tourist industry. However, that industry has been on the downfall until recent times. Since the past few years, the tourist arrival rate in Pakistan is increasing with the improvement in the security situation. This is good news not just for the tourism industry but for the economy as a whole. This new surge in tourist arrival rates has also opened new doors for international collaboration. Experts feel this would greatly help in reinstating Pakistan's image globally, as a pleasant tourist destination.

| | | Criteria | |
Ranking	Lower cost	Feasibility	Effectiveness
1	Positive social media coverage	Physical security	Physical security
2	Physical security	Positive social media coverage	Cultural exchanges
3	International trade	Cultural exchange	International trade
4	Cultural exchange	International trade	Positive social media coverage

Table V.
Order of the alternatives for each criterion

The third alternative ranked by experts is a cultural exchange program between different countries. By cultural exchange, this study means carrying out such activities that can help a country to communicate to the world its intended positive image. It means exporting cultural knowledge about themselves. Cultural exchange can mean many things. This could be in the form of creating movies to be screened at international film festivals. Representatives from a country can travel abroad and participate in events that allow them to exhibit their culture. Also, organizing and involvement in global villages, attending international conferences, etc., will promote better cultural exchange. It should present a peaceful, quiet and calm picture of Pakistan. A kind of Pakistan which the government and its people hope to build.

Positive social media coverage is the fourth alternative and ranked the furthest from the ideal solution. It involves marketing the country or destination on all kinds of social media platforms in a positive way. Experts believed that this alternative may not be costly but is, at the same time, not very effective. However, it does play an important role in influencing peoples' opinions. The smallest, most insignificant of video clips can be viewed millions of times on YouTube. Just like that, just one bad word or one good word regarding a destination can reach millions worldwide. In the past, Pakistan has suffered terrible losses from terrorist activities. These acts were given extensive media coverage on all platforms. This slowly eroded people's previous image of Pakistan and replaced it with one they associated with violence and instability. However, the ground reality was, and is, much different. Pakistan is not all about exploding bombs and raining bullets, it is about a slow, peaceful and calm life. People are going about with their daily lives, just like in the rest of the world, doing as good as they can with the best they have. Instead of highlighting a normal Pakistani's life, few fading anomalies are always plastered on the big screen thus forcing people to associate Pakistan with negative facts. To counter that, government and citizens alike can come up with social media campaigns that can divert people from their previously held beliefs about Pakistan and change their perception. We must bring attention to changes that must be made to prosper in the long run. Thus, social media should be used to advertise Pakistan as a safe, peaceful country free from violence and terrorism.

When asked what would make tourists trust a destination that has been attacked by terrorists in the past, they gave a list of answers to choose from. The first choice was presence of strict physical security measures; the second choice was if someone they knew and trusted, assured them of the safety and pleasantness of such a destination. The third choice provided was strong social media forces advocating the safety and pleasantness of that destination. The fourth choice was frequent visits by other tourists. The fifth was if a substantial lapse of time to help them forget their reservations about that destination. Among the participants, 32 per cent believed that the presence of security measures would convince them that a previously attacked destination is safe; 28 per cent felt that word of mouth from close family and friends would be enough of an assurance. 14 per cent stated that they are liable to get influenced by social media and would allow it to dictate their perception of such a destination. This response shows that seeing is believing. People need tangible proof of the existence of a certain measure of security. They need to be able to see for themselves that the likelihood of them being in the crossfire of a terrorist attack is minimum or non-existent. Thus, physical security is the nearest to the ideal solution and most recommended option for the government to act upon.

In Pakistan, there have been many measures undertaken to ensure tourists feel physically safe. For instance, recently a French climber was stranded on the mountainside. Four expert rescuers saved him from Pakistan's "killer" mountain, the Himalayas

(Mulholland, 2018). This is an example of the government proving to tourists that it has both the motivation and the potential to keep them safe from all kinds of harm.

The practical implications of this paper lie in the governmental aspect of policy making. Policy making is used to reflect a broader understanding of a society and its people's context of governmental decision making. Developing tourism of a country needs proper planning and strong policies (Stevenson *et al.*, 2008). In the case of Pakistan, the government should take examples of the cities that has already a history of policy making, like the city of Leeds. This city was identified as a destination quite "tough" for tourism by Buckley and Witt (1985). When creating the country's policies regarding tourism, the Government of Pakistan can make use of information put forth in this paper. After all, the protection of tourists and the tourism industry is the government's responsibility. The local police department should be instructed to take extra efforts to make tourists feel safe, as some officers claim to do (Pizam *et al.*, 1997). The research carried out in this paper allows the authors to recommend measures that can enable the government to make effective efforts for image recovery.

The government has enough information to help tourism stakeholders produce a policy that is in the favor of the industry as a whole. Pakistan should devise a strategy to ensure comprehensive measures that should attend to physical security, international trade, social media coverage and cultural exchanges to boost the tourism industry. Physical security, that is ranked as a top option by experts for image improvement, should be given top priority by local and national government bodies. Increasing numbers of police officers at tourist spots, especially the ones having a history of terrorist attacks should be made a top priority. Security checks, electronic metal detectors should be installed at those places. The government should make sure in their policy making that they have enough funds to do so. Only in this way can a government be eligible enough to make those security measures possible.

Tourists have also revealed that they would be more willing to visit a country if they were able to see tangible proofs of increased security for their benefit. This is why the study places an emphasis on physical security. One way to expand tourism in a country is when police departments give special attention to the tourist's safety. Make them feel at ease while they are visiting. Only such policies will result in the increase of tourism. Because tourism is an important economic generator, it is only mandatory that tourists be given special attention.

Similarly, [olicies should be designed keeping in mind the fact that Pakistan's international image has already been tarnished by both foreign and local media because of the extensive coverage that is given to every act of terrorism. These policies should reflect Pakistan's determination to create a safe space, a safe environment and experience for both local and international tourists. Pakistan can adopt different methods of advertisings on the social media. The government should make documentaries highlighting what this country and its people have to offer. This study has gathered valuable insight into potential tourists' frame of mind. The survey revealed that most tourists would be willing to pay a visit to a location if the word of mouth that has reached them is positive. Thus, it is essential that Pakistan's beauty and safety should be vigorously advertised. Because the image portrayed by social media holds great significance for potential tourists, the government should take measures to encourage the sharing of positive information and tourist experiences. Any act of violence or terrorism should not be given coverage. Positive tourist accounts of traveling in Pakistan should be sponsored on social media websites such as Facebook. For instance, Dawn News Blog Posts frequently publishes blogs written by tourists of their positive traveling experiences of Pakistan (Johanna, 2017).

It is necessary for the government to highlight Pakistan's image in the international market. This can be done if they form a foreign policy that communicates with other nations, encourage them to invest in Pakistan and send their people to our country to expand tourism. Having a firm foreign policy would reap success whose effects can be felt in the years to come.

Furthermore, the government should work with tourist experts, destination managers, tour organizers, etc. It will be easy for the government to know what steps it should take that can have a greater impact on tourism. This step will prove to be fruitful because only a person who is in this field for a long time can give the government a more worthy and effective recommendation.

To summarize this research, we studied four different alternatives by conducting a survey and concluded that security should be a top priority for a country who is aiming to have a strong tourism industry. Previous studies focused more on studying just one alternative at a time and general perception of the tourists. Our study successfully fills that gap by taking four different alternatives in the country. Similarly, studies of this nature are scarce in Pakistan. This study brings novelty in this region of the world and aims to help the government save its tourism industry.

Limitations and future lines of research

Time and a limited number of participants are a few of the limitations of this study. We believe that if the survey could have been extended even further to a large number of participants with more than enough time, the results could have been even in a more refined form. Second, the people in this region rely more on the trend and on what they hear or see. On the contrary, in Western countries, people tend to get full information about a tourist spot where they plan to visit. Therefore, we can expect slightly biased results.

A future line of research can be the inclusion of even more alternatives to studies related to this topic. Many more aspects can be covered that can prove to be successful measures in steps toward the positive perception of tourist destinations. The study can reach out to a larger number of population of the region and even at a very smaller scale such as a city for instance within Pakistan or worldwide with more alternative and criteria.

Conclusion

The objective of this study was to find a perfect measure that can be more effective in improving a terrorism-affected tourist destination's image. To do so, three criteria were used to measure alternatives: cost, feasibility and effectiveness. The alternatives determined were: physical security, expansion in international trade agreements, cultural exchanges and positive social media coverage. After a complete study of those alternatives, physical security was ranked first, as it was closest to the ideal solution, the second was international trade, the third being cultural exchanges and the fourth was positive social media coverage. The paper allowed us to determine the best way to recover a country's image and thus induce tourists to view it as a safe and pleasant travel destination. They believe that the highest impact caused would be by physical security. Also, it would not cost much and would be very feasible to manage and implement. Experts determined that international trade would also be a viable option but will prove to be significantly expensive in terms of cost, whereas in terms of feasibility and effectiveness, it is believed to have a high impact. Experts chose cultural exchange as their third most preferred alternative because it was easy to implement but was costly and had a very little impact. The fourth-ranked alternative was positive social media coverage which had the lowest cost but also it had the lowest rating in terms of effectiveness and feasibility.

Based upon these rankings, we can assist governments to form their tourism policies. Results based on their rankings showed that governments should put extra effort into the improvement of physical security. People should feel peaceful while visiting tourist spots. They should be made to believe that the government is always there to protect them in person. Such security arrangements should be a part of the policies through which it is always impossible for any violent attack to happen. Foreign policies of the governments should be strong enough to increase international trade if they expect to get the tourism industry expanding. International trade will help stabilize the economy, thus making it possible to secure tourist destinations. Foreign policies should also enable the exchange of students and citizens with other countries. Right now, there are some organizations who have youth exchange programs, student exchange programs. Governments should step up in this regard. Only by doing this, can they show their culture to the world and thus create a very positive perception of Pakistan. Regular cultural events with foreigners invited should also be a part of the government's policy.

Furthermore, making documentaries on tourist destinations, telecasting programs related to the events being held in those spots frequently is a necessary thing to do nowadays. Social networking website, electronic media have an immense impact on an individual's thinking. They believe whatever you show them and that is where the government should take steps to ensure people get inspired by the beauty and safety its country has to offer.

Policy makers should devise a policy which can enable the tourism department to work with different channels and social websites. Both can exchange their expertise and it can do wonders. Their policies should comply with these results. Only then, the steps taken will be more effective. Right now, working on these four options is in the best interests of the country and its people. From security to social media, and from international trade to cultural exchanges, they all should be the government's top concerns if they want to achieve a positive perception of its tourist destinations.

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Appendixes

appendixes 1, 2, 3 and 4 represent the alternatives. They are calculated using the weights assigned by experts.

Appendix 1

Criteria	Rating	Very high			Rating	High			Rating	Medium			Rating	Low			Rating	Very low			fuzzy weight			(c-a)+(b-a)	[(c-a)+(b-a)]/3	BNPi
Net Cost	11	8.25	11	11	26	13	19.5	26	22	5.5	11.0	16.5	13	0	3.25	6.5	8	0	0	2	0.33	0.56	0.78	0.67	0.221875	0.56
Feasibility	16	12	16	16	4	2	3	4	25	6.25	12.5	18.75	5	0	1.25	2.5	2	0	0	0.5	0.39	0.63	0.80	0.65	0.217949	0.61
Effectiveness	7	5.25	7	7	36	18	27	36	22	5.5	11.0	16.5	0	0	0	0	3	0	0	0.75	0.42	0.66	0.89	0.70	0.234069	0.66

Table AI.
Positive social media coverage

Appendix 2

Criteria	Rating	Very high	Rating	High	Rating	Medium	Rating	Low	Rating	Very low	fuzzy weight	(c-a) + (b-a)	[(c-a) + (b-a)]/3	BNPi
Net Cost	24	18 24 24	22	11 16.5 22	25	6.25 12.5 18.75	0	0 0 0	1	0 0 0.25	0.49 0.74 0.90	0.66	0.219907	0.71
Feasibility	14	10.5 14 14	30	15 22.5 30	29	7.25 14.5 21.75	6	0 1.5 3	1	0 0 0.25	0.41 0.66 0.86	0.70	0.233333	0.64
Effectiveness	28	21 28 28	22	11 16.5 22	26	6.5 13.0 19.5	4	0 1 2	0	0 0 0	0.48 0.73 0.89	0.66	0.220833	0.70

Appendix 3

Criteria	Rating	Very High	Rating	High	Rating	Medium	Rating	Low	Rating	Very Low	fuzzy weight	(c-a) + (b-a)	[(c-a) + (b-a)]/3	BNPi
Net Cost	19	14.25 19 19	32	16 24 32	28	7 14.0 21	1	0 0.25 0.5	0	0 0 0	0.47 0.72 0.91	0.69	0.230208	0.70
Feasibility	9	6.75 9 9	32	16 24 32	30	7.5 15.0 22.5	4	0 1 2	5	0 0 1.25	0.38 0.61 0.83	0.69	0.230208	0.61
Effectiveness	31	23.25 31 31	27	13.5 20.25 27	17	4.25 8.5 12.75	5	0 1.25 2.5	0	0 0 0	0.51 0.76 0.92	0.65	0.217708	0.73

Table AIII.
Cultural exchange

Appendix 4

Criteria	Physical security			Positive social media coverage			Increase international trade			Cultural exchange			g_j^*	g_j^-
Lowest Cost	0.41875	0.66875	0.875	0.334375	0.559375	0.775	0.489583	0.736111	0.902778	0.465625	0.715625	0.90625	0.90625	0.334375
Feasiblity	0.378125	0.621875	0.846875	0.389423	0.629808	0.802885	0.409375	0.65625	0.8625	0.378125	0.6125	0.834375	0.8625	0.378125
Effectiveness	0.638889	0.888889	1	0.422794	0.661765	0.886029	0.48125	0.73125	0.89375	0.5125	0.7625	0.915625	1	0.422794

Table AIV.