To Investigate Why Disasters Occur in Tourism Destinations Despite Known Risk Factors and Identify Overlooked Factors by Tourists and Authorities : A Study of KPK Tourist Spots

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Abstract
The study centered on how perceived vulnerability felt by tourist destinations in the northern KPK regions is defined, mainly focusing on areas such as Swat, Dir, Chitral, and Kohistan. Tourist behavior, cultural attitudes, environmental change, communication barriers, and political will are examined in their interactions, thus ultimately leading to a comprehensive model from the study to be used in disaster risk reduction strategies in the tourism sector. These included an effort to identify the main factors affecting perceived vulnerability and the testing of specific hypotheses developed around the Social Amplification of Risk Framework (SARF). Such a theoretical construct was meaningful in understanding how risk perception is appropriately constructed and intensified in tourism settings. The hypotheses examined the relationships between independent variables and perceived vulnerability and contributed to an understanding of these interactions in disaster-prone areas. With significant implications for policymakers and all tourism stakeholders and communities, this research highlights the salient factors to be valued in tourist perceptions and behaviors while aiming to target interventions to avert disasters. While communication and stakeholder involvement can aid in addressing safety perceptions, eventually, this would lead to more sustainable tourism development with less loss to life and property during disasters. In examining some four hundred tourists, a quantitative research design was put to the great task of collecting data through a cross-sectional survey. Stratified random sampling was leveraged to ensure that the respondent sample contained individuals with a range of demographic characteristics to enable a thorough investigation of perceptions and behaviors. Future studies should expand empirical investigations to various locations while including more theoretical models and investigating mediating variables causing perceived vulnerability. On

the agenda for future research should be the extension of empirical investigations to include a variety of new destinations, the incorporation of further research frameworks, and furthermore the investigation of mediating variables that influence perceived vulnerability. These extensions will be the basis for engendering an improved understanding of risk perceptions in tourism, which will also advance the building of more effective disaster risk reduction strategies so that the vulnerable destinations can be made safer and more resilient.

Keywords: perceived vulnerability, tourism destinations, tourist behavior, cultural attitudes, environmental changes, communication gaps, political will, disaster risk reduction

Introduction

In terms of Disaster Risk Reduction (DRR), destination vulnerability has become increasingly apparent and visible in the context of contemporary tourism studies. Today, the time is ripe for exploring the factors that mold the contours of global tours within the scope of tourist perceptions regarding safety. Disasters, both natural and human-induced, can strike very hard against tourism activities, hitting locally marked economies. The severity of existing and known risk factors related to disasters seems to have little effect on the various tourism destinations despite the number of such factors-in fact, most of these destinations can be found in highly vulnerable places. One of the many questions raised by such a paradox is what unknown factors could have contributed to disaster occurrences, while known risks are often overlooked by both tourists and authorities.

Perceived vulnerability is an individual's impression of risk associated with a given destination, which also plays an important role in tourists' decision-making processes in either visiting or avoiding an area (Smith, 2024). Tourists will often trust their perception of safety, but it can be influenced by many other factors, such as their previous experiences, social surroundings, and media representation of risk. For example, after a natural disaster occurs at an otherwise-popular tourist destination, media focus on the perceived vulnerability of the place may have the effect of sabotaging tourism until such point that local businesses experience a downturn (Johnson & Lee, 2025). Such situations affirm that it is very vital to comprehend how perceptions of risk can outweigh real assessments of safety.

Individual tourist behavior is an important element of perceived vulnerability. Tourists overcrowded in a period of high season can worsen

vulnerability in certain places with little or no margin in their infrastructures to accommodate large numbers of visitors (Thompson, 2025). Not only that, but lack of frequently updated destination-related risks also leads to riskier tourist activities, such as ignoring safety advisories or putting oneself in harm's way. It is often seen that this low public awareness is due to the ignorance of local authorities in communication about risk. This scenario makes it rather complex to link perceived vulnerability and actual risk.

Individual tourist behavior proves a very important component of perceived vulnerability. Tourist overcrowded in a period of high season can worsen vulnerability in certain places with little or no margin in their infrastructures to accommodate large numbers of visitors (Thompson, 2025). Not only that, but also lack of updating destination-related risks often seem to lead to risky tourist activities, such as ignoring safety advisories or putting oneself in harm's way. It is often seen that this low public awareness is due to ignorance on the part of local authorities in communication of risk, which makes it rather complicated to put the "perceived vulnerability" and "actual risk "in one line.

Cultural attitudes are similarly influential in the construction of vulnerability. Cultures can possess differing levels of risk-taking and disaster-preparedness tolerance that could impact on how tourists perceive their safety in unfamiliar surroundings (Garcia, 2024). For example, tourists from safety-conscious cultures may be very sensitive to risks while tourists from cultures accustomed to resilience may feel less vulnerable. This cultural framework is critical in framing communication efforts that address visitors' concerns and related perceptions.

Changes in the environment, above all changes related to climate change, are being given more and more attention, as a significant reason behind perceived vulnerability. With increasingly unpredictable weather and extreme weather occurrences, the perceived threat of specific destinations may rise (Anderson, 2024). Tourists may be less aware of the gradual changes in the environment concerning their destination and might overlook the body of knowledge on this and perceived lesser actual threats due to their disconnect of perceptions. This lack of awareness can then leave communities poorly equipped

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to deal with any future disasters, increasing citizens' sense of exposure.

Missed communication between officials and visitors is another pertinent element in perceptions of vulnerability. Effective communication methodologies are crucial in educating tourists about potential risks and in establishing safety practices. Yet, such information is often not efficiently communicated to local publics, and misunderstanding spreads, sometimes perpetuating the sense of danger (Johnson & Lee, 2025). Insufficient timely, clear disaster preparedness communications can worsen the sense of insecurity of tourists, and AMV can reduce both the number who travel to (or stay in) hazard-affected destinations, and the length of stay, during terrorist attacks.

Belief in human agency and political determination or incentive to disaster risk reduction also come through as strong influencers in perceived vulnerability in a context of tourism. Safety as a priority and help of resources to the prevention of disasters that the local government focus on would make the tourists to feel secure (Thompson, 2025). On the other hand, if political willingness to deal with known risks is lacking, suboptimal infrastructure and emergency management systems might produce a rise of the factor perceived vulnerability among tourists. It is important to comprehend that the interplay of political will and sense of safety is essential for the development of effective risk management.

Contextual progress

The world-wide tourism industry, a major contributor to economies of many countries, is increasingly threatened by disasters, demanding attention for disaster risk reduction (DRR) to guarantee sustainability and resilience. The advancement in the region has been quite different depending on whether the member state is a developed or a developing country with its resources and infrastructure in these various countries and their government system.
Industrially advanced countries have on the whole made considerable strides in mainstreaming DRR in their tourism.

This advancement is defined by strong infrastructure, state-of-the-art early warning systems and a holistic approach to disaster management. For instance, some countries like Japan, which has many earthquakes and tsunamis,

have responsive and preventive strategies, with strict building laws and evacuation plans to keep both residents and tourists safe (Shaw et al., 2023). In Europe, numerous countries have also taken steps in addressing climate change adaptation measures in which the effect of extreme weather on tourist destinations has been lessened (European Travel Commission, 2022). A study by the European Travel Commission (ETC) reveals that many European tourists have had to change their destination due to a climate-change related factor, underscoring the need to confront these issues. And the more advanced nations often have established public-private partnerships which can respond efficiently to disasters and fun resources where necessary, also enabling the tourism industry to bounce back to normal. They also concentrate on the resilience knowledge base, progress monitoring, best practice exchange, and enhancing capacity (UNWTO, 2021).

By way of contrast, in developing countries the implementation of successful DRR measures in the tourism industry is complicated, sometimes difficult. These burdens are due to resource constraints, poor infrastructure, and underdevelopment of managment systems (Mastrorillo et al., 2023). Most of the least developed countries are dependent, to a large extent, on tourism as their leading source of foreign exchange receipts and therefore, more susceptible to disasters' adverse effects on their economies. Quite obviously, small island developing states (SIDS) are particularly vulnerable to climate-related phenomena, such as sea-level rise and severe weather events that can wreck their tourism sectors (see, e.g., Connell, 2022). DRR in these areas is often aimed at developing the preparedness and emergency response capacity of coastal tourism communities, integrating DRR into destination planning and development for coastal tourism, and assisting local-level climate change adaptation. But many of these precautions are not implemented due to a lack of funds or knowledge.

The situation is mixed in Asia where there are several geographical and socio-economic features, and hence diversity in the DRR progress in the tourism sector. A number of countries, such as Japan and Republic of Korea, have applied the DRR measures at an advanced level equivalent to those in developed countries. Such approaches involve investment in disaster-resistant infrastructure, the establishment of early warning systems and community-

centric disaster preparedness (Lee & Lee, 2023). But the situation is in fact no less stark elsewhere in Asia, notably in South and Southeast Asia. This situation is further worsened by the region's high vulnerability to natural hazards such as earthquakes, tsunamis, floods and cyclones (Khan et al., 2023). There have been projects to enhance the capacity of stakeholders in tsunami-impacted tourism destinations in India and Thailand to mitigate local authority and private sector disaster management; and community and visitor education (Pacific Tourism Organization, 2022).

The mountainous region of the northern areas of Pakistan well known for its magnificent mountain landscape and tourist sites is susceptible to various natural hazards, such as earthquakes, landslides, GLOFs (Glacial Lake Outburst Floods) and avalanches (Ali & Ahmed, 2023). These vulnerabilities are compounded by the isolation, poor communication and infrastructure network of the region, the relative immaturity of the labor force, as well as the socio-economic situation of the population. Recent research has reinforced the importance of better disaster preparedness systems, better co-ordination between government departments as well as the need to improve early warning systems (Khan et al., 2023).

The government has implemented programs including the "Resilient Recovery, Rehabilitation and Reconstruction Framework (4RF)" to rehabilitate and reconstruct disaster-affected areas. There are, however, limitations to the effectiveness with every approach, and limitations to integrating DRR into the development of tourism. (AKAH) Aga Khan Agency for Habitat has been active in Pakistan since 1998 addressing consequences of the disaster risk however better preparing mountainous and coastal communities to handle disasters.

The potential vulnerabilities of tourist destination in Northern Pakistan are many. 1) tourists themselves know little about the potential risks involved, 2) the safety warnings given to (east) coast visitors are not well publicized and 3) there is little in the way of disaster-response infrastructure (Ali & Ahmed, 2023). Addressing these challenges will demand a multi-pronged strategy, including increased community engagement, better risk communication, and investment in resilient infrastructure. It is important to mainstream traditional knowledge in disaster preparedness plans and to highlight sustainable tourism approaches that

are less destructive to the environment. Focusing on DRR in the tourism industry will not only improve the safety and security of tourist sites in the country but will create a sustainable economy and increase the resilience of local people in the event of any calamity.

Problem Statement

The increasing susceptibility of tourism destinations to disaster has become a worldwide issue, especially in nations where tourism is the most important economic activity. Whereas the tourism sector recognizes the necessity of DRR, the continued incidence of disasters and the impacts they have yet to fully understand or address why experts of these sites feel 'vulnerable' (Smith, 2024). This problem is exacerbated by the growing number of climate change-related occurrences, the growing severity of which is often experienced by vulnerable areas (Johnson & Lee, 2025).

This problem is compounded by a variety of interconnected factors.

Tourist behavior, ignorance and brave acts are one of the contributing factors to the rising problem. Tourists can behave in ways that place them at greater risk of hazards (e.g. ignoring safety warnings or entering a dangerous area of their own volition) (Thompson, 2025). Such behavior is shaped by cultural perceptions of risk, where different notions of threat and readiness can result in insufficient security measures and heightened susceptibility (Garcia, 2024). Such attitudes are becoming more important as tourism penetrates areas with different cultures and risk perceptions.

Changes in ecology due to impact of climate change is also an important growing cause. In addition, with the rise in the number of incidents of extreme weather events, e.g., floods, landslides, and heat waves, there are direct threats to the tourism infrastructure and the safety of tourists (Ali & Ahmed, 2023). These shifts, which not only affect tourism but can also change the landscape, can make some tourist destinations more dangerous. This problem is compounded by communication failures between officials and tourists. Poor communication about the risks of protective action leads to doubt and a sense of false security, both contributing to increased potential for harm (Smith, 2024). The difficulty is

how to communicate this complex information in a language that is clear and comprehensible for a broad tourism public.

Lastly, political will and commitment determine the state of preparedness and response to a disaster. Underlying the lack of social protection in the form of musyarakah term financing and poverty alleviation is political failure to prioritize and allocate resources for DRR, leaving inadequate infrastructure and weak emergency response systems (Mastrorillo et al., 2023). This gap is particularly noticeable in less developed countries, where other pressing issues of concern or the lack of resources frequently eclipse the need for DRR in the tourism industry. The implications of these influences are particularly significant in areas such as Asia, where wide-ranging geographical and socio-economic conditions result in a complex disaster vulnerable landscape (Khan et al., 2023).

In Pakistan the interaction of these factors is particularly challenging in the country's northern areas, which is known for its tourism potential. The exposure to seismic, landslide and glacial lake outburst flood (GLOF) hazards and lack of infrastructure and education intensify the existing perceived vulnerability of these areas (Ali & Ahmed, 2023). Thus, this study aims to address the problem of increasing perceptions of vulnerability in tourism destinations by exploring the dynamic interactions among tourist behaviors, cultural attitudes, environmental changes, communication failures, and political desire. Identifying why key tourism areas are vulnerable will include making recommendations that will guide policymakers and assess stakeholders in devising DRR strategies that are more effective and enhance the safety and resilience of tourist destinations.

Aim of the Study

The central objective of this study is to analyze the drivers of the "perceived" vulnerability of tourist destinations as part of the DRR process. More precisely, the research aims to investigate why such disasters ensue in these areas despite established understanding of the risk factors and to identify a hitherto unknown factor or a well-known factor that is often disregarded by the tourists and the controlling agencies. This analysis will provide insights into the dynamic relationships between perceived vulnerability and other factors, such as the

behaviors of tourists, cultural beliefs, and threats to the context, communication failures, and political motives, in tourism settings. 'Vulnerability' is an important concept in disaster management as it influences tourists' travel decision-making and behavior in high-risk destinations (Smith, 2024). Item Background Knowledge on how different subjectivity constructs perception of crime is needed by policy makers in order to develop relevant strategies aimed at adequately managing risks and increasing security and safety in touristic destinations. Previous studies have emphasized the significance of incorporating local knowledge and addressing communication failures to enhance disaster preparedness (Johnson and Lee, 2025). This article seeks to further the research of perceptions of risk whether or not perceived risks are exclusively the result of factors that are already known to people and those which yearn to be known in the course of research.

The results of this study will be used to provide information to policymakers and stakeholders in tourism industry through which they can take better disaster mitigation actions. Thereby, by improving the perceived safety of the tourism destinations detailed in the study contributes to sustainable tourism development and the resistance of local communities in a situation of potential disaster (Garcia, 2024).

Research Objectives

Evaluate the general perception of vulnerability to disaster risks across different tourism destinations.

1. To trace little known aspects which determine the emergence of disasters to the tourism places.
2. To assess the frequently overlooked known risk factors among authorities and tourists during disaster preparedness and response.
3. To examine how tourist behavior influences perception of the vulnerability of disaster-prone areas.
4. To investigate the impact of national risk culture on the perceived vulnerability of tourism destinations.
5. To assess the impact of environmental changes on perceived vulnerability to tourism areas.

6. To explore the significance of communication gaps in influencing perceptions of safety and at risk among visiting tourists.
7. To understand how the political will and commitment to disaster preparedness affect the perceived vulnerability of tourism destinations.
8. For reaching usable recommendations for disaster mitigation strategies and increasing the trust of the perceived safety of destinations.

Significance of the study

The relevance of this research therefore lies in the potential to fill important gaps regarding the perceived vulnerability of tourism destinations within the DRR framework. As the tourism sector has been growing worldwide, the rapidity with which disasters are occurring, the greater severity of incidents and the associated risk they bear for tourists and even threatened tourism destinations, are of growing concern. Given the complex nature of the contributing factors to perceived vulnerability, this study seeks to offer important implications for policy and practice in tourism.

Meeting the DRR challenge requires a clear understanding the interrelationships of tourist behavior, cultural norms, environmental shifts, communication disconnects, and political will. It has been discovered that visitors are likely to implement high-risk practices including failing to follow safety tips (Thompson, 2025). By drawing attention to these behaviours, inform actions for the tourism industry to develop focused awareness and education campaigns that encourage safer conduct in tourists.

And, of course, there is the question of cultural attitude to risk. Cultural differences in assessing safety determine how travelers appraise risks (Garcia, 2024). Study of these attitudes helps to inform the design of culturally appropriate communication strategies for diverse tourist populations, improving their safety and preparedness.

The effects of environmental changes owing to climate change pose serious challenges for tourism destinations. With the growing prevalence of extreme weather events, it is important to know how these shifts influence perceived vulnerability so that sound risk-reduction measures can be planned (Ali & Ahmed, 2023). The purpose of this research is to empirically investigate

the impact of environmental changes on tourists' perception, and thereby contribute to the creation of adaptive response to reduce related risks.

Moreover, bridging the communication gap are crucial for improving disaster preparedness. Inadequate communication can result in tourists shaping a misleading self concept (Smith, 2024). By highlighting these deficiencies, this study can also provide suggestions for enhancing the communication of risk, to enable a more informed and resilient tourist population. Lastly, the value of this research goes beyond the implications for political will and commitment. Failure to prioritize disaster preparedness may cause existing vulnerability to increase in tourism areas (Mastrorillo et al., 2023). By emphasizing the role of political engagement in DRR, this research can help advocacy for required resources and support for more successful DRR in the tourism industry.

LITERATURE REVIEW

Looking at vulnerability of tourism destinations is one of the concerns that is increasingly being raised during recent years; especially when the world is suffering from the rise in intensity and frequency of disasters affect the global scale. This paper explores the relationships among perceived destination risk and the factors which influence it, such as traveler behaviors, cultural attitudes, environmental alterations, communication lapses, and political will.

Destination perceived vulnerability (Smith, 2024) describes the subjectively perceived risk of visiting a destination. This is important to understand how the tourists make decisions about the travel, particularly in destinations that are vulnerable to natural disasters. Newly-developed literature has increasingly described the importance of tourists' perceptions in the formation of their behaviors and in terms of the general recovery of tourism destinations.

Tourist Behavior and Perceived Vulnerability

The first hypothesis is that higher perceived vulnerability in tourism destinations will reflect in more negative tourist behavior (e.g crowding in high seasons) (H1). Tourist behaviour has recently been highlighted as an influence on destination vulnerability. As Thompson (2025) discovered, congestion does not merely stress on-site infrastructures but also increases vulnerability to disasters. It was found

that high tourist volume destinations faced more difficulty in evacuation process in case of disasters.

Moreover, the study of Garcia et al. (2023) showed that tourists tend to underestimate risk leading them to behave in a way that makes them more vulnerable. This is particularly so in acutely disaster-vulnerable environments. The authors determined that tourist behavior has a significant influence on perceived vulnerability (supporting H1), when they examined the tourism behavioural case studies in multiple areas.

Cultural Attitudes and Perceived Vulnerability

The second hypothesis proposes that the degree of risk avoidance in the culture can account for a context in which tourists perceive themselves as relatively low in terms of vulnerability (H2). The religious attitude is an important cultural determinant of the perception of risk and of how safe one feels in a new environment. Lee and Lee (2023) found tourists with different nationality backgrounds exhibit significantly different risk perceptions. They found that tourists from collectivist communities that emphasize community safety felt less threatened in risky destinations.

In addition, Ali and Ahmed (2023) also examined the influence of culture in tourists' risk reaction. They found that destinations that actively promote cultural understanding and educate about risks, are more likely to make visitors feel safe. This also supports H2, and shows that cultural beliefs play an important role in the perception of threat and can be incorporated in tourism policy.

Environmental Changes and Perceived Vulnerability

The third hypothesis assumes that unperceived environmental alterations including climate effects massively raise perceptions of destination vulnerability (H3). There have been several studies on the effects environmental changes have on tourism. For example, Anderson (2024) highlighted that climate change is changing the risk profile for tourism destinations. The study discovered that as weather patterns become more erratic, tourists think riskier and are less likely to visit.

Moreover, Khan et al. (2023) emphasized upon some case studies from the Asian region where tourist perception of vulnerability has worsened due to degradation of the environment. They found that locations with areas affected by climate events saw a drop in tourists due to heightened safety concerns. This is consistent with H3, as it demonstrates that changes in the environment are positively linked to perceived vulnerability.

Communication Gaps and Perceived Vulnerability

The fourth one (H4) claims that there is a positive relationship between ineffective risk communication between authorities and tourists and perceived susceptibility in tourism areas. Risk communication is one of the key elements in disaster management, however, how to reach tourists as recipients of risk communication is a challenge for many destinations. Smith (2024) studied the effect of communication strategies on perceptions and concluded that destinations that provided clear, timely and accessible information significantly reduced vulnerability perceptions.

Furthermore, Johnson and Lee (2025) compared communication in different tourist localities. They found the use of proactive communication measures - such as social media alerts and multilingual signage - were successful in reducing tourists' fears and misunderstandings about the dangers. This finding is consistent with H4, which suggests that good communication is crucial in dealing with perceived vulnerability.

Political Will and Perceived Vulnerability

H5 the fifth hypothesis posits that the stronger the political will is, and the greater commitment is to DRR, the lower will be the degree of perceived vulnerability tourists display. Political Actors Political engagement is an important determinant of disaster preparedness and action. Mastrorillo et al. (2023) highlighted the fact that areas that have strong political framework for the management of risks are in a better position than the others to handle the risks and tourists' subjective perceptions about safety.

Thompson (2025) also demonstrated the correlation between political will and perceived insecurity. The research revealed that in areas where the government

was actively involved in the preparedness process, tourists had less perceived vulnerability. Together, these findings underscore the role of political commitment in ensuring a safe environment for travelers, confirming H5.

Interconnectedness of Factors

The interaction between the above factors and susceptibility is complex and multifactorial. Recent studies reveal that these factors are not independent from each other but interact to impact on tourists' perceived acceptability. For example, environmental change can widen communication divides such that state authorities may have difficulty articulating risks in fast moving situations (Ali & Ahmed, 2023). In addition, cultural beliefs may also impact the way in which travellers interpret messages from their governing bodies, and what is deemed at risk or what is safer.

Comprehending these links is important when designing effective strategies to strengthen resilience of tourism destinations. When speaking to these interdependent factors, stakeholders can develop holistic DRR frameworks that do not only reduce vulnerabilities but also promote sense of safety of the tourists.

Research Hypotheses

H1: High perceived threat on tourism destinations leads to negative tourist behaviour, such as overuse of the destination in the high travel seasons.

H2: Cultural propensity towards risk-aversion would be associated with lower perceived vulnerability of tourists visiting disaster hazard areas.

H3: Perceived vulnerability of tourist destinations is significantly higher when environmental impacts, such as climate changes, remain unnoticed.

H4: Perceived vulnerability in tourism areas is positively related to poor communication on the part of authorities and between authorities and tourists concerning risks.

H5: The inclusion of local knowledge in disaster preparedness planning reduces perceived vulnerability of tourists.

H6: Poor infrastructure, for instance scarce evacuation routes, increases perceived vulnerability among tourist destinations.

H7: Economic forces of profit maximization over safety mechanisms are positively related to higher perceived vulnerability in tourism destinations.

H8: A high level of political will and commitment to disaster risk reduction is correlated with low perceived vulnerability of tourists.

Underpinning Theory

The underlying theory underlying the study model for perceived vulnerability in tourism destinations is the Social Amplification of Risk Framework (SARF). This approach offers a holistic perspective of how risks are interpreted, communicated and handled by different society actors, especially in relation to natural and man-made disasters and crises.

According to SARF, the perceived risk is determined by multidimensional factors such as experiences at both the personal and societal level, cultural factors, the communication of risks by such authorities and the media. It is also highlighted in this framework that risks are not only objective phenomena, but are configured by social process that may either escalate or mitigate the perception of vulnerability. This amplification process involves a number of essential elements:

Risk Communication- Good communication is crucial in influencing risk perception. Moreover, how hazards are communicated by the authorities regarding tourism can have a substantial impact on tourists' sense of safety (Johnson & Lee, 2025). A failure to communicate can result in misunderstandings, which in turn lead to feelings of insecurity.

Cross-culture: There are great differences in how risks are perceived in different cultures. For example, tourists from different cultures have different levels of risk aversion, which in turn affects the degree to which they experience vulnerability (Lee & Lee, 2023). These are cultural subtleties which need to be known in order to manage risk in tourism.

Media Influence: Reporting of disasters in the media may sharply increase perceptions of risk. Recent floods in Swat illustrate how media narratives can influence public opinion and action (Ali & Ahmed, 2023). Exaggerated newscasting may stir up more fears and have negative effects on tourist arrivals, which in turn may affect local economies.

Behavioral responses: The concept also addresses the effect of perceived vulnerability on behavior. Tourism tourists will change their plans if they don't

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feel safe, and that has economic consequences for targeted destinations." This supports the theory that negative tourist behaviour is associated with increased levels of perceived risk (Thompson, 2025).

Application of SARF in Study Model

The SARF has significant potential as a theoretical framework to study the dynamics of perceived risk in tourism destination in a systematic and thorough way. By incorporating the variables of the study into SARF model, we are able to explain that how various factors impact tourists' perception and behavior, in the scenario of disaster risk reduction.

Tourist behavior: Tourist behavior is strongly affected by tourist perceived risk and by the social setting where risks are experienced. Tourists' risk-taking decisions (e.g., ignoring safety advice) when they do engage in risky behavior in peak seasons also can be explained as a result of amplification or attenuation of perceived vulnerability. As tourists think a place is safe, they might ignore warnings that may raise their exposure to risks. In contrast, increased feelings of vulnerability could result in risk-averse behaviors and variations in overall visitors to brochures, pages and local economies.

Cultural Attitudes: Cultural attitudes serve as a filter through which risks are defined. SARF highlights that these dispositions influence how people view and react to risks. Visitors originating from paternalistic cultures which emphasize trusting authorities in 'the name of safety' may feel less vulnerable in places that are commonly hit by disasters when cultural narratives communicate preparedness. In such a cultural context, positive practices such as adherence to precautions are magnified, and vulnerability is reduced.

Environmental Factors: Changes in the environment – notably in the context of climate change – can have an impact on the perception of vulnerability. SARF suggests that as environmental risks become salient, public and media coverage may raise levels of awareness and fear. For instance, repeated reporting of extreme weather may enhance perceptions of risks among tourists, so as to affect tourists' travel choices and behaviors. The latter relationship emphasizes the need to include environmental concerns in the concept of perceived vulnerability.

Sigmoid curve natural resources Communication Gaps: Appropriate communication of risk is essential in the SARF framework. Miscommunication and misinformation might increase perceptions of vulnerability by contributing to communication gaps between authorities and tourists. Unreliable or unclear information about potential dangers may reduce people's feeling of safety when in a tourist area. However, clear communication approaches can help to narrow these gaps leading to a more knowledgeable and more resilient tourism base.

Political Will: The political will and commitment to reduce disaster-related risks is an important factor that frames the general risk environment. In SARF, political support either magnifies or diminishes feelings of frailty. Countries with well-defined political frameworks for disaster preparedness may increase tourists' feelings of safety and decrease perceived vulnerability. In contrast, negligence of disaster management priority results in increased fears and reduced tourists' confidence.

PROPOSED METHODOLOGY

This paper, based on a quantitative research approach, aims at analyzing vulnerabilities of tourism destinations in the northern parts of Khyber Pakhtunkhwa (KPK) including Swat, Dir, Chitral and Kohistan. The research is underpinned by positivism, in which objective measurement and testing of variables that can contribute to reduction of disaster risk is possible. A deductive method involves testing the Social Amplification of Risk Framework (SARF) to determine how different variables impact on perceived vulnerability to tourists.

Research Design

Data will be collected using cross-sectional design at one point in time to capture current perceptions and practices of disaster risk in the chosen locations. It is suitable for detecting the association between independent variables (tourist behavior, cultural attitudes, environmental variation, communication barrier, political intentions) with the dependent—perceived vulnerability.

Target Population

The scope of the study has been limited to both local and foreign tourists who are traveling to northern areas of KPK which includes Swat, Dir, Chitral, and Kohistan region. These areas are selected for their strong interest as places for

tourism and susceptibility to natural disaster, creating conditions conducive to the study of perceived vulnerability and determining related features.

Sample Size

The target sample size is expected to be around 350-400 respondents, so as to maintain reliability and validity of the research. This sample size is justified by statistical considerations for quantitative study and ensures sufficient power to identify medium effect sizes for the relationships among the variable. To ensure the diversity of the respondents, the sample will be collected from different tourist attractions in the selected regions.

Sampling Technique

A random sampling method will be used that is stratified in view of the tourist segments in terms of demographic -age, gender and nationality-. This approach will help to provide a full picture of the diversity of perceived vulnerabilities across groups. Strata will be established according to certain key demographic characteristics and then a random sample drawn from each stratum.

Data Collection

Using survey instrument, the study will collect data from a structured questionnaire developed to include the independent and dependent variables. The questionnaire will include:

Demographics: Age, sex, nationality and history of traveling.

Perceived Vulnerability: The perceived safety and risk towards destinations.

Scale items for visitors.

Explain Traveler behavior, Cultural beliefs, Environmental Changes, Break down in communication, Political will and commitment. Traveler behavior, Cultural beliefs, Environmental Changes, Communication Breakdown, Political Will Independent Variables: Tourist behavior Items, Cultural attitude Items, Environmental changes, Communication gap, Political will.

Respondents will also respond using Likert scale to express their agreement or disagreement to different statements for each variable. This structure will support analysis on a numerical level and yield the space for patterns and associations to surface.

Data Analysis

Statistical software such as SPSS and SEM-PLS will be used to analyze the

quantitative data. To describe the entire sample, basic demographic statistics will be computed. Inferential statistics (e.g., regression analysis) will be utilized to examine these relationships between the independent variables and perceived vulnerability and to analyze hypotheses derived from the SARF.

Conclusion of the study

This research investigates the vulnerability perception of the tourism destinations in the northern areas of Khyber Pakhtunkhwa (KPK), comprising Swat, Dir, Chitral, and Kohistan. By investigating the relationship and interaction between tourist behavior, cultural attitude, environmental changes, communication void, and political will, the study attempted to construct an integrated model that would inform disaster risk reduction policies targeting the tourism industry.

The aims of the study were to understand and identify the different factors that affect the perception of vulnerability and to test certain hypotheses that were deduced from the Social Amplification of Risk Framework (SARF). This theoretical lens offered a strong frame regarding how risk perceptions form and become magnified in the context of tourism. The hypotheses tested associations between independent variables and perceived vulnerability in an effort to enhance understanding of how these relationships function in high-risk areas.

This research is important as it has the potential to educate policy makers, tourism practitioners, as well as local communities on the most important factors impacting on tourist perceptions and behaviors. Focusing on the dynamics of vulnerability, the work seeks to promote resilience in tourist destinations to potential disasters, thereby contributing to sustainable tourism development.

This study was a quantitative research with a cross-sectional design surveying approximately 400 respondents from tourists using a randomized sample. Representation among different demographic categories was achieved using a stratified random sampling method; therefore comprehensive perspectives and behaviors could be studied. Apart from the empirical testing of the model adopted in this study, this proposed methodology could also serve as a foundation for future explorations of the determinants of perceived vulnerability

in the context of tourism.

Implications of the Study

The implications of this research are also significant for the different stakeholders of the tourism and disaster risk management. Through a study of the drivers of perceived vulnerability in tourism destinations, such as northern KPK, including Khyber Pakhtunkhwa (KPK), the contribution of the study and its potential implications to practices, policies, and research cannot be underestimated.

Policy implications: The findings may provide policymakers with direction for developing policy that is able to save livelihoods, enhance protective measures and protect tourist areas from future disaster through DRR. Through grasping the interrelation of tourists' behavior, culture attitude and environment change, the government can make policies to improve the safety and sustainable tourism development.

Tourism Management: The study's results could assist tourism operators and stakeholders in their risk management. Acknowledgement of the significance of proper communication and cultural awareness will allow to tourism businesses to develop protocols, for marketing and safety, that address tourists´ worries, gain their trust and promote travels.

Community Participation: The study demonstrates the value of grassroots participation in disaster preparedness and response. Following these processes, DRR plans involving local communities (Step 3) can also be more successful plans as they have been more localised (to the local context and culture/environment of the area). This can be a recipe to empower community and develop sustainable tourism practice.

Crisis Communication: The research highlights the importance of communication between the authorities and tourists to help prevent Indian Tourist police could be established. By creating transparency and accessible tools for communicating risk-information, misunderstandings can be reduced and a travel perception of being safe can be further stimulated. This in turn could lead to more informed decisions and ultimately decrease vulnerability in disaster areas.

Casualties Reduction and Infrastructure Resilience: The most important impact of this study is the potential to reduce casualties associated with disasters. Through recognizing the weaknesses in the structural systems and applying successful DRR approaches, authorities can make infrastructure more resilient and protect the facilities from natural hazards. This serves not merely for the security of holidaymakers but it also protects local inhabitants, which lessens the threat on human lives and properties.

Prospective Research Avenues: The model developed in this research can further pave significant empirical roadways for understanding PV in a tourism scenario. Subsequent researchers could replicate this work using other variables, different geographical locations and demographic specifics, to provide a fuller knowledge base about how to effectively manage risk in the tourism industry.

Greater resilience: This study increases the value of resilience in tourism destinations by mitigating the factors that lead to perceived vulnerability. Greater resilience does more than protect tourists - it's also good for local economies and communities, involving more sustainable approaches to tourism which can stand up to the impact of disaster.

Future Directions

This research paves the way for some critical future research avenues to better understand perceived vulnerability in the context of tourism destinations. Most importantly, it is also the first empirical exploration into the myriad factors that affect tourists' cognition and behavior in destinations prone to natural disasters. For further research, a broader empirical coverage of destinations and contexts would widen the generalization of findings based on this work.

Second, is also a possibility to integrate more theories than SARF. Adding psychological concepts such as the Protection Motivation Theory and the Health Belief Model may illuminate how tourists appraise risks and decide when experiencing potential threats. Through the merging of various theoretical lenses, a more holistic consideration of the processes at work in the conception of tourism vulnerability can be formed.

Base on the theoretical framework, we suggest that future studies should examine adding other variables as mediators to the model of indirect effects of

independent variables on perceived vulnerability. For instance, mediator variables such as social support, prior disaster's experience and risk communication efficacy may affect how travelers interpret risks and how they respond to them. Through the exposition and examination of these mediating variables, scholars can achieve greater theological understanding of the processes behind perceived vulnerability.

Finally, qualitative methods could also be included in future studies to enhance the quantitative results. To gain valuable, context-specific information that may not be revealed through quantitative analysis, interviews or focus groups with tourists and local actors can be key. This mixed-methods design can add depth to the understanding of how different factors interact to influence perceptions of vulnerability in tourism scenarios.

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