STATISTICS, TOURISM, PSYCHOLOGICAL WELL-BEING

A Non-Parametric Statistical Analysis Exploring the Positive Impact of Tourism on Stress Management

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Abstract

Due to increasing occupational pressures and fast urbanisation, stress has become one of the most widespread public health issues of the twenty-first century. This study uses a cross-sectional survey with 655 respondents to statistically examine the association between tourism, travel behaviour, and stress management. The study looks at psychological advantages, destination preferences, and perceptions of tourism's economic impact using non-parametric test. The study looks at perceptions of the economic impact of tourism, destination preferences, and psychological advantages. With 85.0% of respondents reporting less stress following vacation, the results show a highly substantial positive link between tourism and stress reduction. Additionally, demographic factors have a substantial impact on travel sentiments. The most relevant parameter, occupation, accounted for 76% of survey responses, followed by age (68%) and gender (56%). Road and rail travel were found to be the most tranquil forms of transportation, while hill stations and places of worship were the most favored destinations. In terms of the economy, the majority of respondents (81–85%) concurred that tourism boosts rural income and encourages local entrepreneurship. According to the study's findings, tourism is an essential, demographically adaptable stress-reduction strategy that also promotes local economic growth.

Keywords: tourism; stress management; psychological well-being; non-parametric statistics

1 Introduction

Psychological stress has become a significant public health concern in today's culture, which is marked by fast urbanisation, technological saturation, and growing academic and professional expectations cognitive resources. Historically, travel and tourism have been recognized as powerful antidotes to daily stress, offering temporary escape from routine environments. Contemporary research in environmental and positive psychology substantiates this intuition. Exposure to natural landscapes, diverse cultural settings, and novel social measurable drops in anxiety and subjective stress scores can result from travel-related contacts [1–5]. India offers unmatched tourism ecology due to its incredibly varied topography, which includes hill stations, coastal beaches, historic religious sites, and energetic communities. Despite this, rigorous statistical frameworks have not fully investigated the complex interaction between the demographic characteristics of Indian tourists, their subjective stress experiences, and their particular tourism choices. In order to fill in these gaps, a large-scale quantitative survey with 655 respondents was conducted using SPSS and non-parametric testing.

The principal aims are to:

- Evaluate how common daily stress and mental exhaustion are in different demographic groups.

- Examine the psychological advantages of travel, such as stress relief, improved mood, and excitement.
- Examine how the general public views tourism's financial benefits to regional companies, entrepreneurship, and rural revenue.
- Identify the demographic factor that most significantly affects travel attitudes and behaviours, such as gender, age, or occupation.

This study attempts to provide data-driven insights into how tourism might serve as an effective stress-management intervention by offering a comprehensive view of the stress-tourism continuum, from long-distance vacation travel to local neighborhood activities [6].

2 Review of literature

Theoretical and empirical foundations for this study draw from several psychological and economic models.

2.1 Tourism and psychological well-being

Gilbert and Abdullah [7] established that tourists experience significant improvements in subjective well-being before, during, and after holidays. Furthermore, Attention Restoration Theory posits that natural environments produce significantly greater cognitive restoration than urban settings [8]. This aligns with the push-pull motivation theory, where individuals are pushed by a need to escape stress and pulled by destination attributes like scenic beauty and spirituality [9].

2.2 Stress and mental fatigue

The transactional model of stress defines stress as a perceived mismatch between demands and coping resources [10]. In academic and early-career stages, high demands typically correspond to elevated stress levels [11]. Research has demonstrated that even brief exposure to natural, outdoor environments facilitates physiological stress recovery, validating the use of local walks and rides as coping strategies [12].

2.3 Social and economic dimensions

Traveling with people improves emotional quality because of social support and shared experiences [13]. Sustainable tourism promotes local entrepreneurship and the distribution of revenue in rural areas by creating a substantial amount of indirect economic activity [14].

3 Research methodology

3.1 Research design and instrument

The survey design utilized in this study effectively employed a quantitative and cross-sectional approach. A structured questionnaire made up of 28 questions was thoughtfully divided into six key modules: Demographic Profile, Daily Stress and Fatigue, Local Travel and Mood, Leisure Travel Behavior, Psychological Benefits of Tourism, and Economic/Social Dimensions. This comprehensive design incorporated a variety of response formats, including 4-point Likert scales, multiple-choice questions with nominal options, and dichotomous alternatives, enhancing the depth and richness of the collected data.

3.2 Sampling and demographic profile

The purposive convenience sampling method was effectively utilized to engage respondents from social networks, workplaces, and educational institutions, resulting in a substantial sample size of 655 participants. The demographic profile showcases a commendable gender balance, with 51.5% of respondents identifying as female and 48.5% as male. Importantly, a notable 67.5% of the sample falls within the 18 to 25 age group, while 18.0% are in the 25 to 30 range, emphasizing the study's focus on young adults. Furthermore, the occupational distribution highlights that students represent the majority at 69.5%, followed by working professionals at 25.0% and unemployed individuals at 5.5%. This thoughtful approach enhances the reliability of the findings and underscores the study's relevance to the young adult demographic, paving the way for meaningful insights and discussions.

3.3 Statistical tests applied

Non-parametric statistical techniques were used with a standard significance threshold of $\alpha = 0.05$ because the survey data was categorical and ordinal. Among the tests that were used were:

- Conducts the Wald-Wolfowitz test to determine whether answer sequences are random.
- Chi-Square Goodness-of-Fit: To assess the uniformity of the distribution of categorical responses.
- Wilcoxon Sign-Rank Test and One-Sample Sign Test: To ascertain whether median replies significantly strayed from a neutral threshold.
- Mann-Whitney U Test: For comparing binary gender groups' median scores.
- Kruskal-Wallis H Test: To compare median scores between various occupational and age groups.

4 Results and findings

4.1 Daily stress and local travel

A considerable number of respondents reported experiencing high levels of daily stress and mental fatigue. The Chi-Square test results confirmed that the distribution of responses was not uniform ($\chi^2 = 91.00$, $p < 0.001$), highlighting a significant tendency toward "Very Stressful" and "Moderately Stressful" routines. A similar pattern emerged regarding mental tiredness ($\chi^2 = 83.82$, $p < 0.001$).

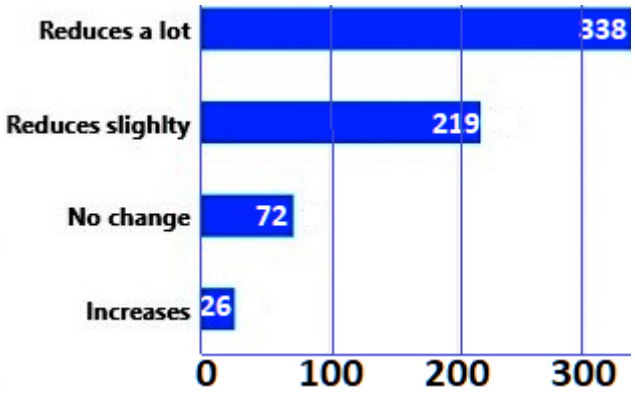

Figure 1. Impact of travel on respondents' subjective stress levels.

To address these challenges, respondents enthusiastically recommended local outdoor activities as effective strategies for stress reduction. Notably, 73.6% expressed that spending time outside in their neighborhood positively impacted their mood ($\chi^2 = 184.69$, $p < 0.001$), while 77.9% indicated that

walking or riding locally helped them cope with everyday stress. It's also worth noting that there was no statistically significant preference among the various local activities, such as walking, riding, sitting in a park, or visiting quiet locations ($\chi^2 = 6.96$, $p > 0.05$). This suggests that providing a range of options for relaxation can cater to diverse individual preferences, making it easier for everyone to find their ideal way to unwind as shown in figure 1.

4.2 Travel behaviour and preferences

A recent study highlights the positive role of leisure travel as a coping strategy, with 54.0% of respondents indicating they travel at least once a year. This trend is promising, as it suggests that frequent travel can play a significant part in enhancing well-being ($Z = 2.03$, $p < 0.05$).

The findings also reveal a clear preference for destinations that emphasize spirituality and the outdoors. Hill stations and places of worship emerged as the top choices for travelers ($\chi2 = 261.70$, $p < 0.001$), while metropolitan areas were less favored. Interestingly, traveling with a diverse group of relatives and friends was more appealing than traveling alone ($\chi2 = 98.16$, $p < 0.001$), pointing to the social benefits of shared experiences.

Moreover, the mode of travel significantly enriches the journey. Travelers reported that road (46.0%) and train (37.4%) travel are particularly soothing compared to air or water travel ($\chi2 = 311.78$, $p < 0.001$). This insight could guide future travel preferences and promote enjoyable and fulfilling travel experiences.

4.3 Psychological benefits of tourism

The research highlights the numerous positive psychological benefits of travel. A significant 81.1% of respondents noted that traveling effectively breaks the monotony of daily life ($Z = 20.81$, $p < 0.001$), suggesting that taking a trip can refresh our routines. Furthermore, an impressive 85.0% reported a decrease in their stress levels after their travels ($Z = 21.95$, $p < 0.001$), indicating that travel can serve as a valuable tool for stress relief.

In addition, 85.6% of participants expressed that travel brings excitement and joy into their lives ($Z = 22.23$, $p < 0.001$), underlining its role in enhancing overall well-being. It's also noteworthy that deep tranquility was closely associated with visiting villages, hill stations, or places of worship, as reflected by the 85.6% agreement among respondents ($Z = 22.63$, $p < 0.001$). This reinforces the idea that travel to serene destinations can promote mental peace and personal growth.

4.4 Influence of occupation

The key demographic factor influencing the variables analysed was occupation, which affected 76% (19 out of 25) of them. Students, facing the dual challenges of transitional life and academic responsibilities, reported the highest levels of daily stress and mental fatigue. This group also engaged in leisure travel more frequently, benefiting significantly from the stress-relieving effects it offers. In contrast, unemployed individuals found that travel provided less stress relief, highlighting the potential for travel to be more advantageous when it allows one to break away from structured routines, such as work or study, rather than from the stressors associated with unemployment.

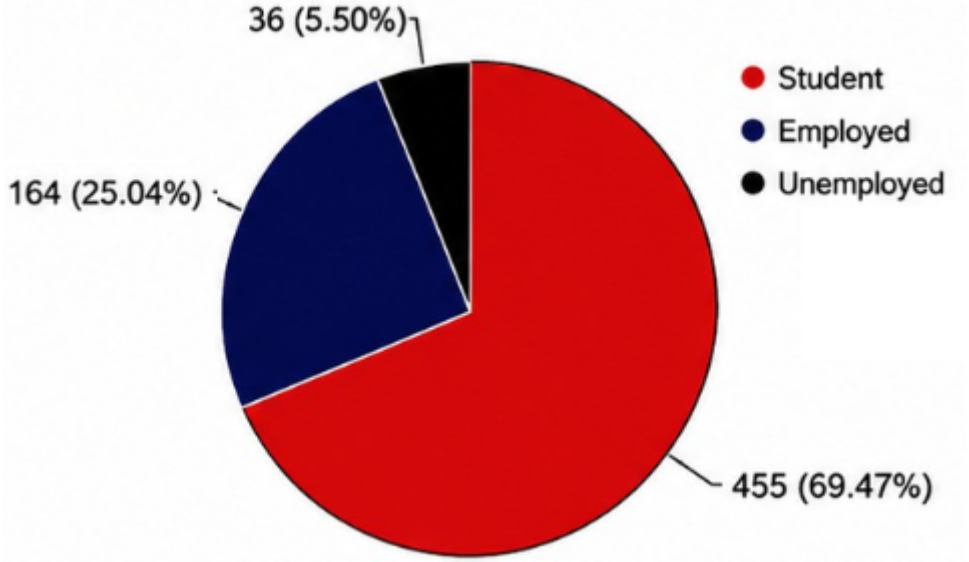

Figure 2. Demographic distribution of respondents by occupation.

Furthermore, employed professionals demonstrated a stronger understanding of the broader economic benefits of tourism and a greater willingness to invest in local souvenirs. This suggests a positive correlation between employment and the appreciation of travel's impact on the local economy, pointing to an opportunity for enhancing community engagement and revenue through tourism as shown in figure 2.

4.5 Influence of age

Research shows that sixty-eight percent of variables related to travel preferences are significantly influenced by age. Notably, the youngest group, those aged 18 to 25, experiences the highest baseline stress levels and exhibits a strong desire for novelty and exciting travel experiences. As we consider the evolving preferences of different age groups, it's fascinating to see how older respondents shift their focus. While younger travelers are drawn to the adventure of hill stations, individuals over 35 tend to gravitate towards destinations that offer spiritual and cultural enrichment. Moreover, older respondents demonstrate a heightened awareness of the fast-paced nature of urban environments and recognize the economic benefits of tourism in rural areas. This insight could inform how travel agencies and marketers tailor their offerings to cater to the unique interests of each age group, ultimately enhancing the travel experience for all as shown in figure 3.

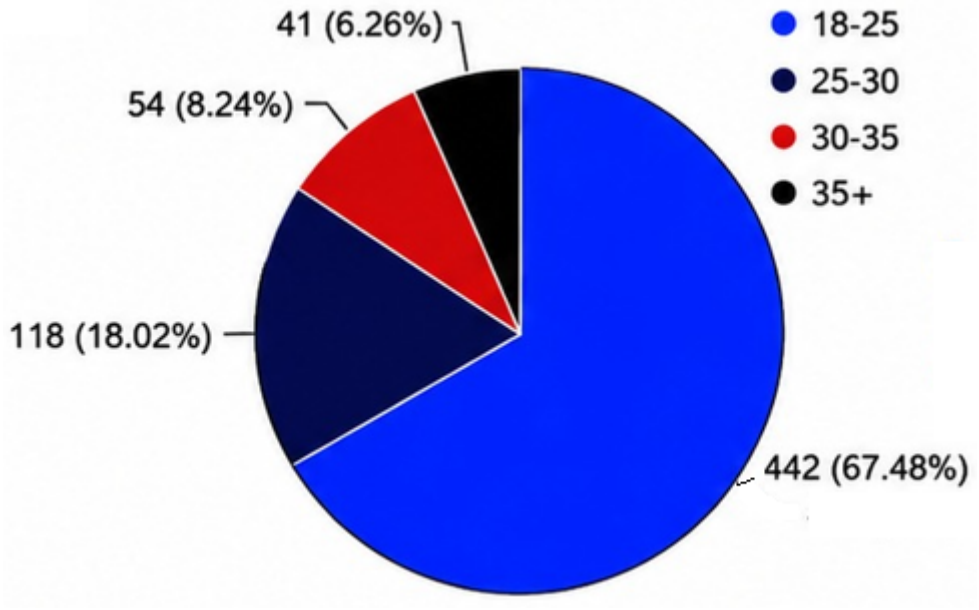

Figure 3. Demographic distribution of respondents by age.

4.6 Influence of gender

The analysis revealed that gender played a significant role in 56% of the findings. Notably, women reported higher levels of daily stress and mental exhaustion than men (U=47,821, p=0.012). In response, many women expressed a strong enthusiasm for travel as an effective way to manage and reduce stress. Additionally, women were more inclined than men to travel for social connections, demonstrating a deeper interest in cultural experiences. They also tended to invest more in local goods and souvenirs during their travels. These insights suggest that women have a proactive and socially engaged approach to travel, highlighting opportunities for travel providers to cater to these preferences as shown in figure 4.



Figure 4. Survey variables significantly influenced by each demographic parameter.

5 Discussion

The study establishes an important relationship between daily stress, mental fatigue, leisure travel, and psychological well-being. Many respondents reported moderate to high stress and mental exhaustion. Outdoor activities such as walking, cycling, and visiting parks helped improve mood. Leisure travel emerged as an effective perceived means of stress relief and relaxation. Hill stations and religious destinations were the most preferred travel choices. Travelling with family and friends highlighted the importance of social interaction. Road and railway journeys were perceived as more relaxing than other travel modes. Travel also helped respondents overcome routine monotony and

experience happiness. Occupation influenced 76% of the examined variables, followed by age (68%) and gender (56%). Students experienced comparatively higher levels of stress and mental fatigue. Employed respondents demonstrated greater awareness of tourism's economic benefits. Younger individuals preferred adventurous destinations, whereas older respondents favoured spiritual and cultural places. Women reported significantly higher stress and mental exhaustion than men (U = 47,821, p = 0.012). They also demonstrated stronger preferences for social and cultural travel experiences.

6 Conclusion

This study presents statistical evidence that tourism is an effective and adaptable stress-reduction technique. The therapeutic benefits of changing one's environment are clear, with 95.7% of the participants identifying travel as a method to reduce stress. In addition to its psychological benefits, tourism is known for its strong economic multiplier effects, particularly its ability to boost rural incomes and promote local entrepreneurship.

The findings indicate that an individual's demographic profile affects the effectiveness of travel as a coping strategy. For example, adventure and social travel can be promoted to high-stress student populations, while restorative road trips can appeal to young professionals. Additionally, the spiritual and comfort-oriented preferences of older individuals can be accommodated. Ultimately, providing access to a variety of travel experiences creates two significant opportunities: enhancing public mental health and fostering decentralized economic growth simultaneously.

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